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ABSTRACT

This report documents issues related to the work of the Florida Comprehensive Health Professions Education Plan. Public health education prepares students for initial employment or advancement in a number of positions. While the public health work force is primarily employed in various units in local, state, and federal governments, industry also depends on public health programs in such areas as industrial hygiene, occupational safety, and health and environmental toxicology. Professional public health personnel include statisticians; epidemiologists; general and specialized environmental and occupational health personnel; public health physicians, dentists, nurses, and veterinarians; health educators, nutritionists, laboratory scientists, administrators for health agencies, hospitals, health maintenance organizations (HMOs), and nursing homes or long-term care facilities; health planners; and policy analysts. The issues addressed in this report focus on education/government collaboration, public health manpower, program access, minority participation, and research in public health. (JD)

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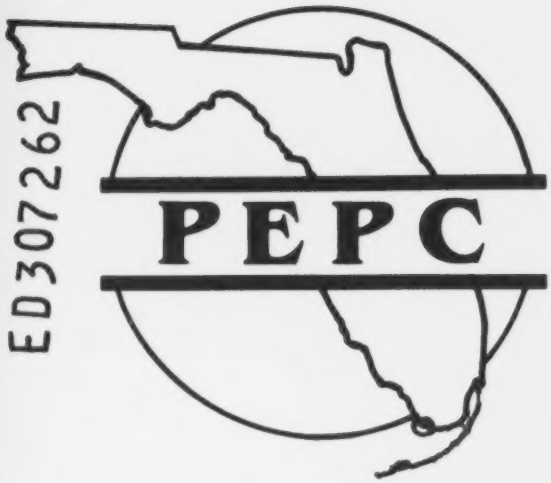

PUBLIC HEALTH EDUCATION IN FLORIDA

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Report and Recommendations of the Postsecondary Education Planning Commission

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1989 - REPORT 1

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The Postsecondary Education Planning Commission, initially created by executive order in 1980 and subsequently given statutory authority, serves as an advisory body to the State Board of Education on all postsecondary education matters. The Commission is composed of 11 members of the general public and one full-time student registered at a postsecondary education institution in Florida. Members are appointed by the Governor with the approval of three members of the State Board of Education and subject to confirmation by the Senate.

The major responsibility of the Commission is preparing and updating every five years a master plan for postsecondary education. The enabling legislation directed that the Plan "shall include consideration of the promotion of quality, fundamental educational goals, programmatic access, needs for remedial education, regional and state economic development, demographic patterns, student demand for programs, needs of particular subgroups of the population, implementation of innovative educational techniques and technology, and the requirements of the labor market. The capacity of existing programs, in both public and independent institutions, to respond to identified needs shall be evaluated and a plan shall be developed to respond efficiently to unmet needs."

Other responsibilities include recommending to the State Board of Education program contracts with independent institutions; advising the State Board regarding the need for and location of new programs and branch campuses of public postsecondary education institutions; reviewing public postsecondary education budget requests for compliance with the State Master Plan; recommending to the Commissioner of Education proposals for support through the Postsecondary Cooperation Trust Fund; and periodically evaluating the State's 28 regional coordinating councils for vocational education, adult general education and community instructional services.

Further information about the Commission, its publications, meetings and other activities may be obtained from the Commission office, 304 Knott Building, Department of Education, Tallahassee, Florida, 32301; telephone (904) 488-7894.

POSTSECONDARY EDUCATION PLANNING COMMISSION

PUBLIC HEALTH EDUCATION IN FLORIDA

Prepared in Response to
Specific Appropriation 526
of the
1988 General Appropriations Act
(Chapter 88-555, Laws of Florida)

1989 - Report 1

January 19, 1989

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EXECUTIVE SUMMARY

In proviso accompanying Specific Appropriation 527 of the 1988 General Appropriations Act, the Legislature charged the Commission to conduct a study of public health education in Florida. This report is to be submitted to the State Board of Education, the Speaker of the House of Representatives, and the President of the Senate by March 1, 1989. The study of public health education is one of a series of reports related to the Florida Comprehensive Health Professions Education Plan.

Public health education prepares students for initial employment or advancement in an array of positions, and students in these programs represent diverse backgrounds and academic preparations. While the public health workforce is primarily employed under various units in local, state, and federal governments, industry also depends on public health programs to train employees in such areas as industrial hygiene, occupational safety, and health and environmental toxicology. Professional public health personnel include statisticians; epidemiologists; general and specialized environmental and occupational health personnel; public health physicians, dentists, nurses, and veterinarians; health educators; nutritionists; laboratory scientists; administrators for health agencies, hospitals, health maintenance organizations (HMOs), and nursing homes or long-term care facilities; health planners; and policy analysts.

Although undergraduate degrees are awarded in related areas, graduate education through public health programs is the primary source of personnel prepared extensively in public health. Graduate education is offered by schools of public health as well as by programs outside of these schools and includes nine major specialties: Biostatistics, Epidemiology, Health Services Administration, Public Health Practice and Program Management, Health Education, Environmental Sciences, Occupational Safety and Health, Nutrition, and Biomedical and Laboratory Sciences. Joint graduate degrees, combining a public health degree with an outside degree, are offered by some institutions.

Public health programs were first offered in Florida during the early 1980s, and in 1983 the Board of Regents designated the University of South Florida for a new College of Public Health. At present, master's degree programs are available at the University of South Florida, Florida International University, and the University of Miami. The University of South Florida houses the State's only doctoral program. All of the State's public universities offer public health-related programs.

The results of increased emphasis in recent years on public health educational opportunities in the State are reflected in significant enrollment and graduation growth. Among the existing three public health programs, total enrollments grew from 117 to over 300 between 1984 and 1987. A total of 189 master's degrees were awarded between 1984 and 1987. As the programs continue to develop and attract increasing numbers of graduate students, enrollments are expected to surpass the levels of these early years. Concurrently, market demand for better prepared public health personnel is expected to create increased stress on the State's public health programs.

Issues addressed in this report focus on education/government collaboration, public health manpower, program access, minority participation, and research in public health. The importance of education/government collaboration is underscored by the fact that the State's public health system is the major employer of public health graduates and of employees who seek additional preparation through public health education programs. An organized effort between State government and the public health education and related programs is needed to coordinate the public health education needs of the State, research interests, and continuing education needs of the public health workforce. Public health programs can assist the Department of Health and Rehabilitative Services in identifying personnel requiring enhanced training and developing the educational experiences to best serve them.

The public health manpower picture in Florida is difficult to define. This is due in large part to the great diversity in educational preparations among public health personnel. Data on manpower supply is complemented by graduation information from the State's public health and related programs and by State Health Office records. Current demand data and projections, however, fall short of providing adequate and timely information for planning purposes. In particular, the State and the public health education programs need to assess the status of personnel required and employed with graduate degrees and of the educational plans of employees to seek graduate degrees. This kind of information will benefit not only the Department of Health and Rehabilitative Services but also the agencies of the Department of Education and institutions responsible for providing these educational opportunities.

Access to public health education in Florida has been greatly enhanced in this decade. Nonetheless, the demographic characteristics of the State's population, particularly the growing elderly cohort, migrant and immigrant groups, and the indigent, indicate that increasing demands will be placed on the State's public health system, producing a concomitant need for more and highly trained public health professionals. Continued monitoring of program access is needed to assure adequate service and to project for future geographic access to graduate education in public health concentrations.

Minority representation in public health education programs remains a central issue in the study of health professions in Florida. The Commission is concerned with both the level of participation and the progress of racial/ethnic minorities from enrollment through successful completion of public health programs. Even though the ratio of black and Hispanic students in public health education graduate programs in the State's postsecondary institutions is higher than the national average, concerted efforts must be made to improve the distribution of these groups in all of the programs and to increase their representation in proportion to the total enrollment.

Finally, better coordination of public health research between public health programs and the Department of Health and Rehabilitative Services emerged as an issue during the conduct of this study. The interdisciplinary nature of public health work reinforces the need for constant updating of information across many fields and for research that is current and specific to the problems of Florida's public health system. Joint development of a public health research agenda and strategies to carry out that agenda are central to strengthening public health research in the State.

Recommendations:

1. The new state-level health policy and education coordinating group to be convened by the Statewide Health Council should act as a catalyst to strengthen collaboration and coordination between the Florida public health system and public health education programs. Since this state-level group is to include representation from the Board of Regents, the State Board of Community Colleges, the Division of Vocational, Adult and Community Education, the State Board of Independent Colleges and Universities, and the State Health Office, it is the appropriate entity to assist in developing education/government linkages.

2. The State Health Office, with participation from county public health units, should identify the educational needs of public health employees at local, district, and state levels who do not have the preparation desired for their positions. The State Health Office and the public health education programs should jointly design a set of activities and actions whereby public health education programs can help meet those needs.

3. The College of Public Health at the University of South Florida and the public health programs at Florida International University and the University of Miami should assist the State Health Office in the development of an orientation program designed to introduce health professionals to public health work. To facilitate the implementation of this orientation program statewide, a package should be designed that is transportable rather than site specific which draws on existing educational expertise in various public health education and related programs as well as in local health departments.

4. The orientation program described above should be incorporated into the experiences provided to recipients of the newly-funded Medical Education Tuition Reimbursement Program. As the Reimbursement Program carries a requirement to work in an underserved location identified by HRS, it would be appropriate to encourage recipients to select public health as a means of fulfilling their service commitment. The transition "orientation" package should provide the types of information and the focus needed to stimulate recipients to consider public health work.

5. Within the Department of Health and Rehabilitative Services, the Office of Comprehensive Health Planning, the State Health Office, and county public health units should conduct on-going analyses of public health positions in the State system and develop manpower projections for public health professionals in the major specialties. Using these data, the State Health Office should provide periodic reports analyzing manpower supply and demand in the public health system.

6. The public health education programs should conduct studies to identify prospective student demand in their service areas to assess both the needs of public health employees and the interest among prospective public health personnel. The resulting data should be communicated to the State Health Office and used in conjunction with other manpower information as part of an on-going manpower information exchange.

7. The State Health Office should replicate the survey on graduate public health preparation undertaken by the 1980 Florida Task Force on Public Health Education. The Department of Health and Rehabilitative Services should then utilize the results of the study in developing a long-range plan to provide graduate public health education opportunities at the master's and doctoral levels for its employees.

8. The newly authorized State Center for Health Statistics in the Department of Health and Rehabilitative Services should receive the full support of the Legislature and the necessary fiscal resources to implement activities and conduct those responsibilities assigned by the 1988 Legislature.

9. The Board of Regents should monitor the manpower supply of and demand for public health professionals in the State to determine if program expansion or additional programs are warranted in order to assure that the needs of public health education are served throughout the State.

10. During the 1990-91 Board of Regents program review, the Board should examine program access in light of the developments in both manpower data and public health education programs in the interim between this study of public health education and the Board's program review.

11. The State should continue support for the FIU/UM affiliated public health program.

12. Florida International University should examine its allocation of institutional resources to assure that adequate support is provided to the institution's public health program to meet the needs of student enrollment and accreditation requirements. In light of the program's significant contributions in providing access to public health education in the south Florida area and to enhancing the participation of racial/ethnic minority groups, FIU should assure that allocated resources are sufficient not only to establish a fiscally sound program to meet current needs but also to provide growth opportunities.

13. Public health education programs should participate annually in the Florida Minority Graduate Opportunity Conference to recruit qualified racial/ethnic minorities.

14. Representatives of the public health programs in the State and the State Health Office should develop together an agenda for public health research, identifying the research needs of the public health system and strategies to help meet those needs.

15. Public health education programs, related programs, and the State Health Office should explore the feasibility of jointly utilizing resources in the high technology research program administered through the Florida High Technology and Industry Council.

I. INTRODUCTION

In proviso accompanying Specific Appropriation 527 of the 1988 General Appropriations Act, the Legislature charged the Commission to conduct a study of public health education in Florida. This report is to be submitted to the State Board of Education, the Speaker of the House of Representatives, and the President of the Senate by March 1, 1989. The study of public health education is one of a series of reports related to the Florida Comprehensive Health Professions Education Plan.

The Chairman of the Commission appointed Commission members Dr. Alan Fickett, Mrs. Veda L. Dopson, Dr. Ralph Hogges, Mr. Harry L. Smith, and Ms. Tance Roberts to serve on the Planning Committee and charged this Committee with the conduct of the Public Health Education study. The Committee held committee meetings and public hearings in Orlando, Tallahassee, Tampa, and Fort Lauderdale between September and December 1987 to discuss drafts of the study and to receive public testimony. This study was marked by extensive participation from various constituencies, including public and private universities in the State, the Board of Regents, the Department of Health and Rehabilitative Services, particularly the State Health Office, local health units, and the public health professional organization. Staff gathered and reviewed national and State information on the public health profession and education to provide background material. Numerous interviews were also conducted. Periodic drafts of the study were widely disseminated in order to secure input from all interested parties.

Health professions education was identified by the 1982 Legislature as an area of special study and proviso language to Appropriations Item 369 directed the Commission to "develop a comprehensive health professions education plan for the State." In the subsequent report, Health Professions Report, the Commission outlined a health professions education plan which recommended that several health professions be examined individually over a series of years with priority given to the most critical issues. The report also recommended that existing resources be used and that individual studies not generate supply or demand projections.

The 1982 Legislature also provided proviso to Appropriations Item 369 stipulating that in the development of the comprehensive health professions education plan, priority should be given to determining the need for new and expanded programs in public health. This report was to include immediate and long-range plans to meet the needs for public health education.

Published in 1983, the report, A Study of the Need for New and Expanded Programs in Public Health in Florida, provided an overview of the public health profession and public health education as well as more specific information on the public health needs in Florida and educational programs. In this study, the Commission recommended that the State have only one school of public health in the foreseeable future. It was also recommended that the College of Public Health at the University of South Florida concentrate faculty and research resources to address public health problems specific to Florida and work closely with the Department of Health and Rehabilitative Services and other state agencies in developing priorities for research. On the issue of additional graduate programs, the Commission endorsed

strengthening existing master's programs before allocating resources to create new ones. On this issue, the Commission supported development of a joint MPH program between Florida International University and the University of Miami. It was further suggested that research activities at the two universities address the particular public health problems in South Florida and that they work closely with the immigrant populations and the public health agencies in their native countries to help improve public health standards. A recommendation was made that the Board of Regents consider approving a master's program in public health at the University of Florida if that could be accomplished with limited new resources, and only after addressing priorities concerning the College of Public Health at USF and the joint program between the University of Miami and Florida International University. Additional recommendations also focused on extension and outreach programs, statewide coordination of research priorities, baccalaureate and vocational education, and public health nursing.

Following the completion of studies of eight major health professions education areas, the 1987 Legislature directed the Commission to "continue to prepare a review of the status of all health professions education programs included in the Comprehensive Health Professions Education Plan and provide current information on enrollment and graduate levels, a review of market place demand for graduates, and an analysis of new policy issues and the disposition of former recommendations." The study published in 1988, Comprehensive Health Professions Plan Review for Florida, examined public health education under the guidelines set forth in proviso. An update on manpower information was provided as well as recent data on public health program enrollments, graduations, and minority participation. In reviewing recommendations from the 1983 public health report, it was noted that most of the recommendations had been implemented. The report describes the success and growth characterizing the new College of Public Health at USF as well as the affiliated FIU/UM public health programs in their early years. Less progress, however, was observed in the coordination of research priorities.

As the above background information illustrates, public health education has received considerable attention in recent years through Commission study. The current report provides background information on the profession from both national and State perspectives, descriptive narrative on the three public health programs, and student data. As with previous health professions reports, this study identifies current major issues related to public health education and proposes recommendations to address these issues.

II. PUBLIC HEALTH PROFESSION

A. Background

During ancient times, concepts of public health were often associated with religion and astronomy. Through the centuries, progress has been interspersed with regressive changes. The evolution of community health practices has included, for example, simple codes of ethics governing personal, group, and/or health practitioners' conduct, the use of segregation and quarantine, an emphasis on environmental sanitation and protection of the state without regard for the individual, and an emphasis on personal development and hygiene without regard for the community as a whole. The spirit of scientific inquiry engendered during the European Renaissance followed the devastating neglect of hygiene and mistrust of science that were characteristic of the disease-ravaged medieval period. Scientific progress subsequently made in Europe eventually led to the foundation of modern understanding of disease and health, including concepts of microbiology, histology, and the importance of vital statistics.

The U.S. Public Health Service reports that public responsibility for health developed slowly in the United States, and it was not until the post-Civil War era that government became involved in public health issues. Health advances in the United States during the eighteenth century incorporated ideas of worker, infant, and mental well-being. Despite rapid industrial expansion in both Europe and the U.S., however, health conditions were still appalling. Measures such as establishment of state and local health boards, systematic sanitation programs, and increased research and teaching in community health ultimately became standards of modern public health. Most states had founded health departments by the beginning of the 20th century. Congress experimented with a National Board of Health in the latter part of the 19th century, and the U.S. Public Health Service had evolved by 1912. Florida's public health agency will celebrate its centennial anniversary in 1989.

With the development of national, state, county, and city public health service departments in the last 70 years, public health has become fully recognized as a professional endeavor. In addition to an increased ability to control communicable diseases by the 20th century, recognition of the need to tend to other health problems and to the full potential of each individual as a citizen of the community became an essential facet of public health efforts. Since the 1960s, attention has turned to the question of availability of health resources for all citizens, regardless of socioeconomic, educational, or other status. Previously undreamed of illnesses, such as AIDS and industrially-based health problems, are still being discovered. Finally, increasing technological complexity, particularly in the last twenty years, has contributed largely to the diversity and changing nature of modern public health.

B. Employment

The gradual shift in focus and concerns of the public health system cited above produced expanded functions and responsibilities of public health personnel. For many years, public health focused on the control and elimination of infectious diseases. Today, the goals of public health work

are disease prevention and health promotion. The U.S. Public Health Service lists the responsibilities of public health personnel as including detection, assessment, and monitoring of health problems in populations, prevention of illness, disability, and premature death; health education and health promotion, control or elimination of environmental or occupational factors which result in health problems; health services administration and planning; and planning, organization, and delivery of personal health services by public health agencies.

Concurrently, modified functions and responsibilities have resulted in changes in the composition of the public health work force. In state health agencies alone, the total number of physicians on state health agency staffs decreased by 33 percent between 1979 and 1985 (Table 1). Other positions showing reduced staff numbers include dentists, social workers, health educators, engineers and sanitarians. Conversely during that period, the number of planners, programmers, analysts, statisticians, and other professional and technical staff showed a combined increase of 27 percent. Figure 1 reflects the composition of the estimated primary work force nationally in public health in 1980. Public Health Practice and Program Management along with Environmental and Occupational Health encompassed the major share of the estimated 500,000 persons in public health, accounting for 75 percent of the public health work force. Approximately 66,000 or 25 percent of these individuals had graduate training in public health. This number was estimated to have increased to almost 85,000 by 1983.

A 1987 Association of Schools of Public Health (ASPH) survey found that approximately 80 percent of 1986 public health school graduates work in the public or non-profit sector. The median salary of all employed graduates was $27,500 compared to a median of $26,050 in the South Atlantic area. The study also reported that graduates tended to stay in the areas where they studied, partially because the schools attract local residents, including employed students, and are often located in areas where there is a large job market. About 26 percent of the employed graduates were working for the same employer they had before entering a school of public health. At the time of the study, the South Atlantic area encompassed three schools of public health, not including the College of Public Health at the University of South Florida.

TABLE 1

TRENDS IN STAFFING OF STATE HEALTH AGENCIES BY OCCUPATION
1979-1985

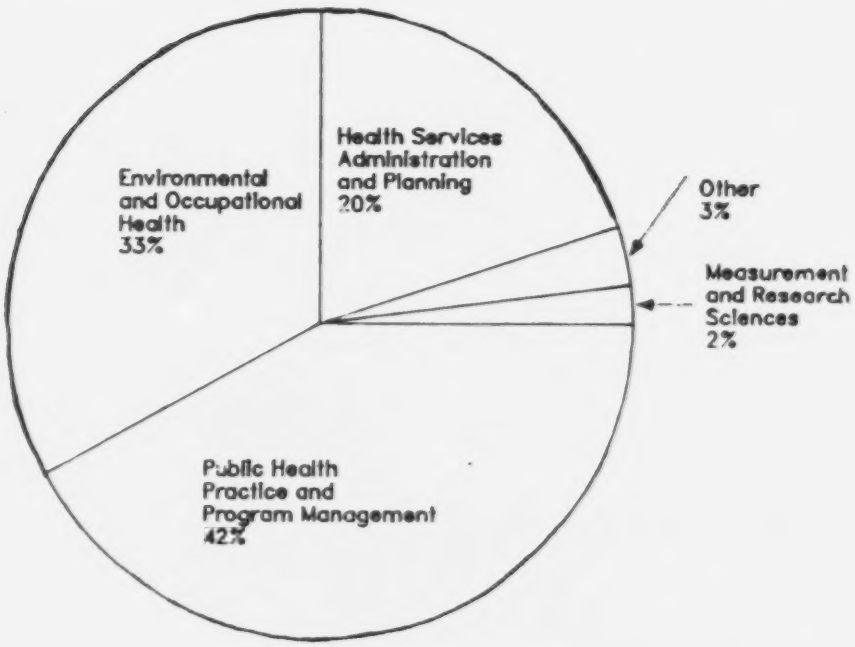
OCCUPATION	1979	1982	1985	PERCENTAGE CHANGE 1979-1985
Total	129,138	117,402	118,775	-8.0%
Professional and Subtotal	75,668	68,865	74,311	-1.8
Physicians	4,322	3,063	2,886	-33.2
Dentists	893	677	530	-40.6
Registered Nurses	19,632	17,743	18,070	-8.0
Licensed Practical Nurses	4,753	4,964	5,025	5.7
Nutritionists, Dietitians	1,610	1,344	1,467	-8.9
Social Workers	2,484	2,003	1,557	-37.3
Health Educators	795	822	683	-14.1
Laboratory Technologists & Related Occupations	6,691	6,100	5,744	-14.2
Engineers and Sanitarians	9,473	8,208	8,178	-13.7
Planners, Programmers, Analysts, Statisticians	2,301	2,260	2,419	5.1
Other Professional and Technical Employees	22,714	21,681	27,752	22.2
All Other (including clerical workers and aides)	53,470	48,537	44,464	-16.9

SOURCE: Association of State and Territorial Health Officials, Public Health Foundation. State Health Agency Staff 1979-1985 Final Report, August 1988.

Note: These data are limited to state health agency staff and the few local health departments whose staff are on SHA payrolls. The totality of health-oriented state staffs is not represented by these data.

FIGURE 1

PUBLIC HEALTH SPECIALIZATION AREAS AND PERSONNEL
ESTIMATED PRIMARY WORK FORCE
1980


Health Services Administration and Planning 20%
Other 3%
Measurement and Research Sciences 2%
Public Health Practice and Program Management 42%
Environmental and Occupational Health 33%

SOURCE: Department of Health and Human Services, 1982.

C. Florida's Public Health System

Responsibility for Florida's public health system rests with the Department of Health and Rehabilitative Services (HRS). Within HRS, the State Health Office provides leadership, policy and administrative direction, and evaluation of public health activities and services. The State Health Office is headed by the State Health Officer, who is also the Deputy Secretary for Health.

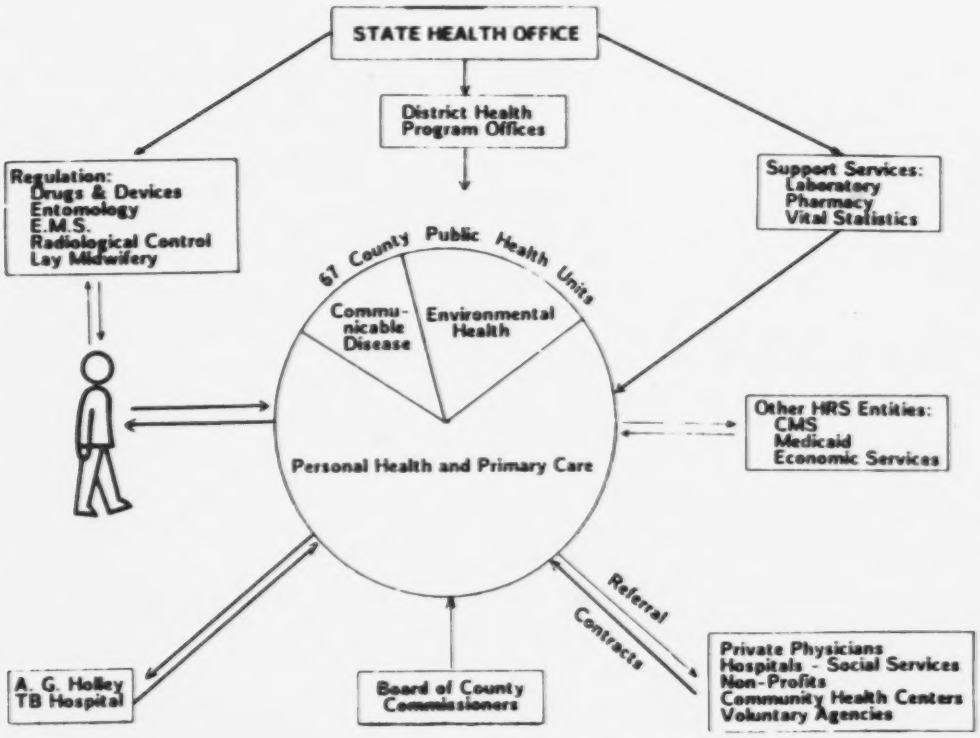
The mission of Public Health as defined by Florida statute, is "to promote, protect, maintain and improve the health and safety of all citizens and visitors of this state". This is accomplished by identifying health risks; detecting, understanding and preventing the spread of disease; and providing primary and personal health care for individuals who are unable to access such care from the private sector. Public health programs include environmental health services, screening and prevention activity, health education, regulatory functions, and medical treatment aimed at targeted "high risk" groups within the community as a whole.

County public health units are the primary service delivery agents in the system, receiving policy and administrative direction from the State Health

Office through the eleven HRS districts. Figure 2 illustrates the relationships among the 67 county public health units and other entities. Boards of County Commissioners provide funding and authorize fees to support county public health units' activities. Regulatory and support services divisions within the State Health Office provide assistance directly to the public and through the county units. In addition, private physicians, hospitals, social service agencies, and other groups refer and receive referrals from the county units.

FIGURE 2

FLORIDA PUBLIC HEALTH SYSTEM



SOURCE: State Health Office, Department of Health and Rehabilitative Services.

The State's public health system includes over 86 programs. The numerous activities conducted by these programs fall into three service levels as described in Florida statutes:

1. Public health services: vital statistics, laboratory, central pharmacy, radiologic health, entomology, communicable disease epidemiology, noncommunicable disease epidemiology, sexually transmitted diseases, immunizations, pharmacy control, emergency

medical services, fluoridation of water for human use and consumption, and environmental services.

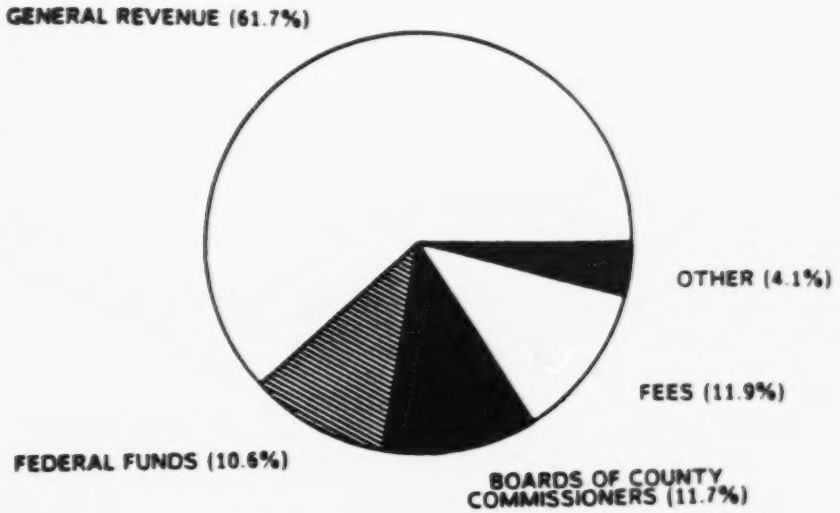
2. Personal health services: chronic disease prevention and control, home nursing services, maternal health, child health, school health, family planning, rape prevention, women, infants, and children and general nutrition services, prevention and education in dental care, and adult health.

3. Primary care services: primary care provided through the county public health units, administration of contracts for the federally funded National Health Service Corps, and primary care centers.

During fiscal year 1986-87, Florida's public health system had a budget of over $229 million. State general revenue provides 62 percent of these funds (Figure 3). Other sources include 12 percent from county ad-valorem taxes, 10 percent from federal grants, 12 percent from fees, and four percent from other areas such as local school boards and special purpose trust funds. Figure 4 shows how these funds were to be allocated, with the largest share (74 percent) to be spent on direct services provided by county public health units; the remainder was to be used for district management, state administration and management, support programs, and regulatory programs.

FIGURE 3

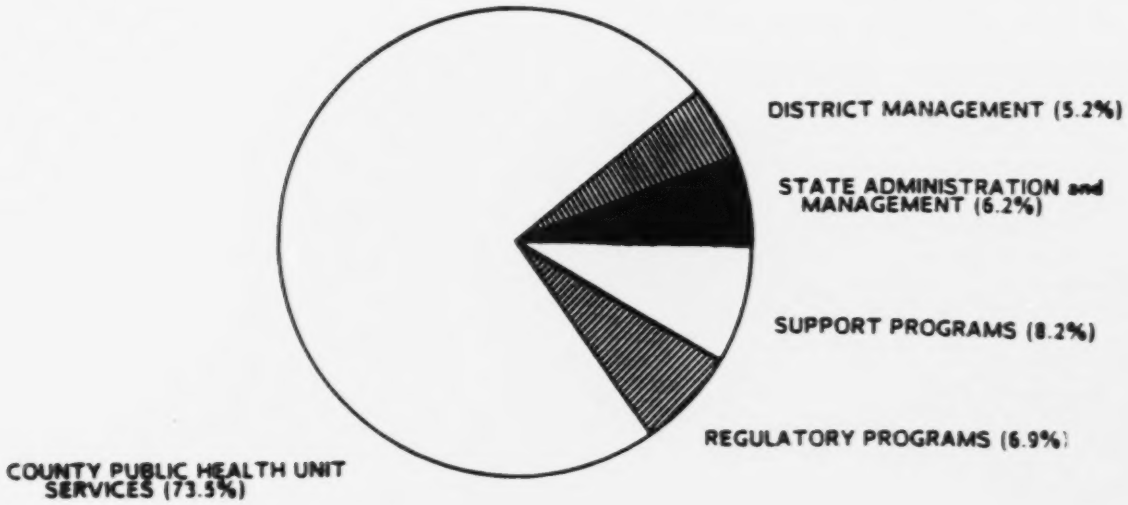
FUNDING SOURCES IN FLORIDA'S PUBLIC HEALTH SYSTEM 1986-87



SOURCE: State Health Office, Department of Health and Rehabilitative Services.

FIGURE 4

EXPENDITURES BY MAJOR FUNCTION FOR FLORIDA'S PUBLIC HEALTH SYSTEM
1986-87

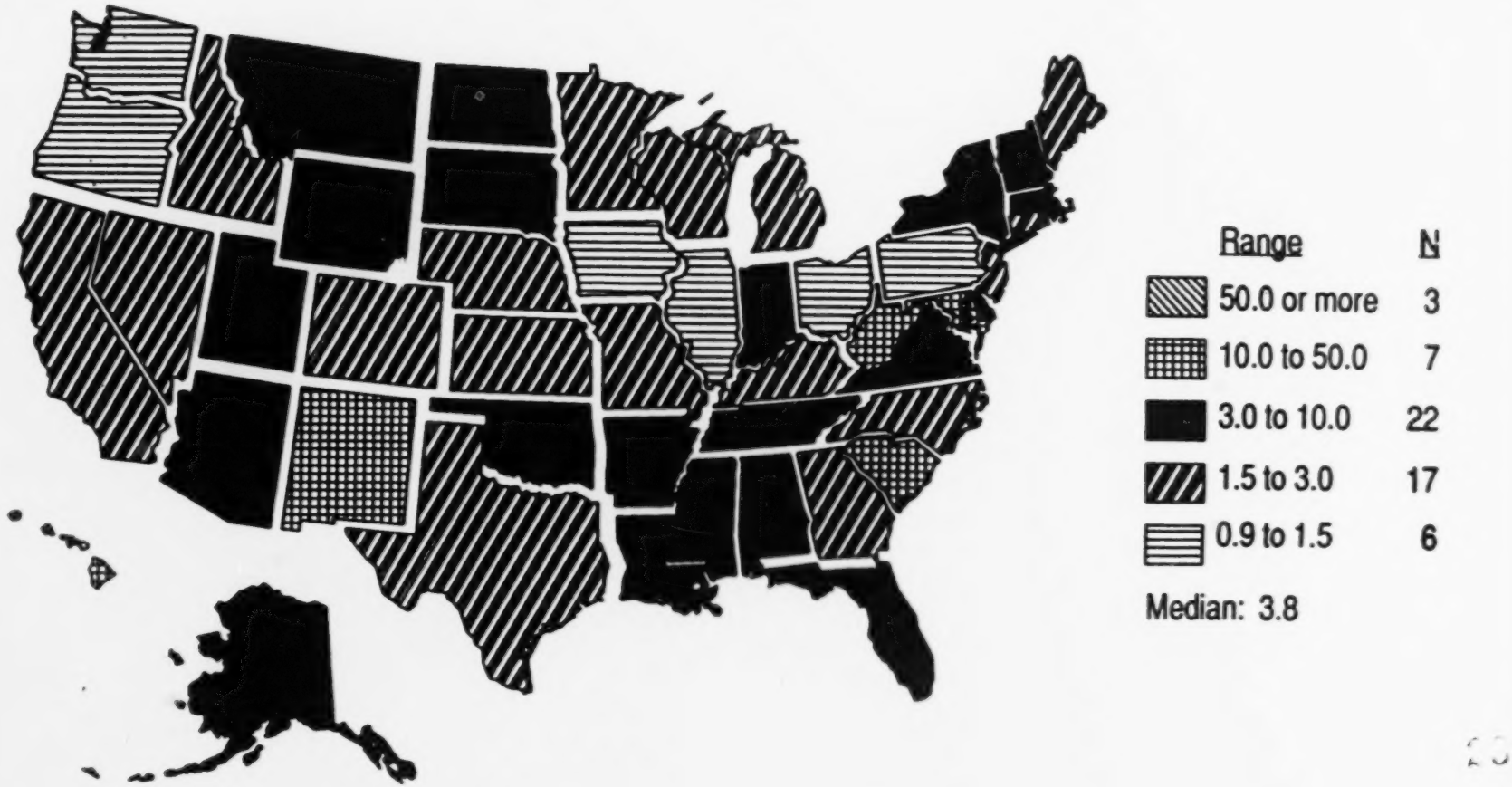

DISTRICT MANAGEMENT (5.2%)
STATE ADMINISTRATION and MANAGEMENT (6.2%)
SUPPORT PROGRAMS (8.2%)
REGULATORY PROGRAMS (6.9%)
COUNTY PUBLIC HEALTH UNIT SERVICES (73.5%)

SOURCE: State Health Office, Department of Health and Rehabilitative Services.

The Florida public health workforce, including personnel from the State Health Office, district health services, and county public health units, totaled 8,635 in November 1988. The majority of these positions, 87 percent, were located in the county units, with 11 percent in the State Health Office and two percent in district health services. These personnel include physicians, dentists, nurses, sanitary engineers, sanitarians, laboratory workers, clerical, other professional and technical personnel, and others. Figure 5 compares the number of persons employed by the various State Health Agencies across the country and shows that Florida falls in the category where close to half of the states have a ratio of three to ten public health workers per 10,000 population.

FIGURE 5

NUMBER OF PERSONS EMPLOYED BY STATE HEALTH AGENCIES,
PER 10,000 STATE POPULATION, AS OF DECEMBER 31, 1985



SOURCE: Public Health Foundation, Association of State and Territorial Health Officials, 1988.

III. PUBLIC HEALTH EDUCATION

Public health education prepares students for initial employment or advancement in an array of positions. Students in public health education programs represent diverse backgrounds and academic preparations. While the public health workforce is primarily employed under various units in local, state, and federal governments, industry also depends on public health programs to train employees in such areas as industrial hygiene, occupational safety, and health and environmental toxicology. Although undergraduate degrees are awarded in related areas, graduate education through public health programs is the primary source of personnel prepared extensively in public health. Professional public health personnel include statisticians; epidemiologists; general and specialized environmental and occupational health personnel; public health physicians, dentists, nurses, and veterinarians; health educators; nutritionists; laboratory scientists; administrators for health agencies, hospitals, health maintenance organizations (HMOs), and nursing homes or long-term care facilities; health planners; and policy analysts.

A. Graduate Education

Whereas other health professional schools focus on a specific clinical discipline such as nursing, dentistry, medicine or pharmacy, public health programs educate a range of professionals, including health administrators, community health educators, biostatisticians, epidemiologists, and numerous specialists. Graduate education is offered by schools of public health as well as by programs outside of these schools. Graduate degrees awarded at the master's level include the Master of Public Health (MPH), Master of Science (MS), Master of Science in Public Health (MSPH), Master of Hospital Administration (MHA), Master of Health Services Administration (MHSA) and others. Doctoral level degrees encompass primarily the Doctor of Public Health (DrPH), Doctor of Science (ScD), and Doctor of Philosophy (PhD).

Graduate programs in public health education are geographically distributed throughout the United States, with five of the 24 accredited schools of public health located in the southeastern region (Table 2). All of the accredited programs offer the Master in Public Health (MPH); many also have degrees in Master of Science (MS) and/or Master of Science in Public Health (MSPH). The MPH is generally recognized as the practitioner degree while the MSPH is oriented towards research. Only three schools of public health do not offer degree programs at the doctoral level. In addition, nationally in 1982 there were approximately 300 graduate programs located outside of schools of public health. The majority of these are found in research universities, housed in such academic areas as engineering, education, business, allied health, medicine, and dentistry. A 1982 report commissioned by the U.S. Department of Health and Human Services estimates that programs located outside schools of public health contributed just over two-fifths of the graduate level work force in 1980.

TABLE 2

TOTAL ENROLLMENTS IN ACCREDITED SCHOOLS OF PUBLIC HEALTH
FALL 1985

Institution	Enrollment	Percent of Total
University of Alabama	248	2.6
Boston University	335	3.5
University of California at Berkeley	482	5.1
University of California at Los Angeles	569	6.0
Columbia University	506	5.3
Harvard University	421	4.4
University of Hawaii	237	2.5
University of Illinois at Chicago	330	3.5
Johns Hopkins University	855	9.0
Loma Linda University	466	4.9
University of Massachusetts	138	1.5
University of Michigan	620	6.5
University of Minnesota	405	4.3
University of North Carolina	728	7.7
University of Oklahoma	279	2.9
University of Pittsburgh	552	5.8
University of Puerto Rico	277	2.9
San Diego State University	308	3.3
University of South Carolina	182	1.9
University of South Florida	---	---
University of Texas	468	4.9
Tulane University	432	4.6
University of Washington	382	4.0
Yale University	274	2.9
TOTAL	**9,494**	**100.0**

SOURCE: Association of Schools of Public Health, 1987.

The student population in public health education exhibits two interesting characteristics. First, a large percentage of these students have an earned degree in another area. Association of Schools of Public Health (ASPH) data show that 40 percent of the 3,268 public health degrees awarded in 1985-86 were to graduates already holding one of the following degrees: Nursing (bachelor's and higher), Masters, Doctor of Medicine, Doctor of Osteopathy, Doctor of Dental Science, Doctor of Veterinary Medicine, Doctor of Philosophy, other doctorate, or other degree. When medically-trained graduates are disaggregated, however, the proportion drops. For example, graduates with a previous degree in nursing, allopathic or osteopathic medicine, and veterinary medicine accounted for only 26 percent of public health degree recipients in 1985-86. These data do not include students in programs outside schools of public health. Second, foreign students comprise a large subpopulation in public health education. Many non-American citizens residing in the United

States or contemplating permanent residency are health professionals who enter public health as an alternative career, especially if they are unable to obtain licensure to practice in the State. The Association of Schools of Public Health reports that the proportion of students with foreign citizenship increased by 50 percent between 1980 and 1985. In 1980, foreign students numbered 730 or 10.8 percent of total enrollment; in 1985 there were 1,410 foreign students or 15.1 percent of total enrollment.

Enrollments

Graduate education in public health contains nine major specialties: Biostatistics, Epidemiology, Health Services Administration, Public Health Practice and Program Management, Health Education, Environmental Sciences, Occupational Safety and Health, Nutrition, and Biomedical and Laboratory Sciences. Joint graduate degrees, combining a public health degree with an outside degree, are offered by some institutions. ASPH reports that nationally in 1985 over 35 percent of the joint degrees sought were combined with Doctor of Medicine (MD) degrees and almost 17 percent were with Master of Business Administration (MBA) degrees. Fifty-one percent of the joint degrees that year were in health services administration.

Enrollment in schools of public health has increased steadily as new schools opened. In 1975 total enrollment numbered 6,461; this increased to 8,486 by 1980. Total enrollment in Fall 1985 in 23 schools (excluding the newly implemented program at the University of South Florida) was stable at 9,494 (Table 2). The four schools in the southeastern region held 20 percent of total enrollments. Fall 1985 national data from schools of public health show that Health Services Administration, Epidemiology, and Environmental Sciences accounted for 54 percent of new public health program enrollments. Recent comparable data from programs housed outside schools of public health are not available. In 1981, however, a study conducted by the Bureau of Social Science Research reported over 13,000 students enrolled in graduate programs outside schools of public health.

Graduations

In 1985-86, 3,268 graduate degrees were awarded by the accredited schools of public health. Table 3 illustrates that 617 or 18.9 percent of those degrees were awarded by the four schools in the southeastern region. The largest number of degrees, 112, was in Health Services Administration (Table 4). Other specializations with a large proportion of the total degrees granted were Epidemiology, Environmental Sciences, Public Health Practice and Program Management, and Health Education. Among programs outside schools of public health, the most recent study (1982) reports 3,518 graduates in 1980-81.

TABLE 3

GRADUATE DEGREES AWARDED BY SCHOOLS OF PUBLIC HEALTH IN THE SOUTHEASTERN U.S. 1985-86

Institution	Total Degrees	Master's	Doctoral
University of Alabama	101	99	2
University of North Carolina	261	229	32
University of South Carolina	63	57	6
Tulane University	192	179	13
TOTAL	**617**	**564**	**53**

SOURCE: Association of Schools of Public Health, 1987.

TABLE 4

GRADUATE DEGREES AWARDED BY SELECTED SCHOOLS OF PUBLIC HEALTH BY SPECIALIZATION 1985-86

Specialization	Total	Univ of Alabama	Univ of N. Carolina	Univ of S. Carolina	Tulane
Biostatistics	27	--	19	3	5
Epidemiology	62	19	17	13	13
Health Services Administration	112	--	69	12	31
Public Health Practice and Program Mgt.	63.5	9.5*	37	--	17
Health Education	62	5	26	21	10
Environmental Sci.	82	6	49	14	13
Occupational Safety and Health	5	5	--	--	--
Nutrition	39	--	29	--	10
Biomedical and Laboratory Sci.	42	--	15	--	27
Other	71.5	23.5*	--	--	48
Nonspecialty	51	33	--	--	18
TOTAL	**617**	**101**	**261**	**63**	**192**

*Dual specializations.

SOURCE: Association of Schools of Public Health, 1987.

Minority Participation

Although the "typical" student of the early 1960s was white, male, and medically trained, there is much greater diversity in the student profile of the 1980s, generally described as older and more experienced. Distinct trends in gender and racial/ethnic minority participation have developed as recently as the mid 1970s revealing increasing representation of females but stable to declining proportional representation of blacks and Hispanics.

Nationally among the schools of public health, the representation of women has increased significantly from 47.5 percent of total enrollments in 1975 to 60.3 percent in 1985 (Table 5). By specialization in Fall 1985, females comprised 77 percent of new enrollments in Health Education and in Public Health Practice and Program Management (Table 6). Males accounted for over 50

TABLE 5

TOTAL ENROLLMENTS IN SCHOOLS OF PUBLIC HEALTH
BY GENDER AND RACE/ETHNICITY
1975-1985

Year	Total[1]	Male		Female	
		Number	Percent	Number	Percent
1975	6,020	3,163	52.5	2,857	47.5
1976	6,182	3,181	51.5	3,001	48.5
1977	6,426	3,233	50.3	3,193	49.7
1978	7,071	3,367	47.6	3,704	52.4
1979	7,346	3,397	46.2	3,949	53.8
1980	6,751	3,023	44.8	3,728	55.2
1981	8,665	3,865	44.6	4,800	55.4
1982	8,895	3,794	42.7	5,101	57.3
1983	8,842	3,690	41.7	5,152	58.3
1984	8,956	3,627	40.5	5,329	59.5
1985	9,494	3,769	39.7	5,725	60.3

[1] Total does not include students who did not indicate gender.

SOURCE: Association of Schools of Public Health, 1987.

TABLE 6

NEW ENROLLMENTS IN SCHOOLS OF PUBLIC HEALTH
BY SPECIALIZATION
FALL 1985

Area	Total	Male		Female	
		Number	Percent	Number	Percent
Biostatistics	154.5	62.0	40.1	92.5	59.9
Epidemiology	477.0	228.0	47.8	249.0	52.2
Health Services Administration	944.0	347.0	36.8	597.0	63.2
Public Health Practice & Program Management	326.5	77.0	23.6	249.5	76.4
Health Education	331.5	78.0	23.5	253.5	76.5
Environmental Science	421.5	249.0	59.1	172.5	40.9
Occupational Safety and Health	64.5	47.0	72.9	17.5	27.1
Nutrition	104.0	9.0	8.7	95.0	91.4
Biomedical and Lab Sciences	87.0	47.0	54.0	40.0	46.0
Other	323.5	120.0	37.1	203.5	62.9
Nonspecialization	152.0	73.0	48.0	79.0	52.0
Nondegree	389.0	118.0	30.3	271.0	69.7
Unknown	61.0	24.0	39.3	37.0	60.7
TOTAL	**3,836.0**	**1,479.0**	**38.6**	**2,357.0**	**61.4**

SOURCE: Association of Schools of Public Health, 1987.

percent of new enrollments in Environmental Science, Occupational Safety and Health, and Biomedical and Laboratory Sciences. A comparison of enrollment estimates among public health programs outside schools of public health with schools of public health reveals a similar gender distribution for the 1981-82 academic year (Table 7). In the schools of public health, females represented 55.4 percent of total enrollments during that year compared to an estimated 58.8 percent in programs outside schools of public health.

TABLE 7

ENROLLMENT ESTIMATES IN PUBLIC HEALTH PROGRAMS
OUTSIDE SCHOOLS OF PUBLIC HEALTH BY GENDER
AND RACE/ETHNICITY
1981-82

	Total	Percent Male	Percent Female	Percent White	Percent Black	Percent Hispanic
Community Health Nutrition	757	22.4	77.6	88.1	5.3	3.3
Environmental and Occupational Health	1,594	67.0	33.0	87.2	4.6	2.5
Epidemiology	73	35.6	64.4	84.9	NA	NA
Health Services Administration	4,773	48.0	52.0	87.7	8.0	1.8
Health Education	5,374	31.9	68.1	82.8	10.3	4.1
Health Statistics	242	41.0	59.0	82.5	1.4	2.4
Community Health	423	42.8	57.2	81.3	13.7	2.2
AVERAGE		**41.2**	**58.8**	**83.9**	**7.2**	**2.7**

SOURCE: Bureau of Social Services Research, 1982.

As with enrollments, the proportion of female graduates of public health programs has increased. During the ten years between 1975 and 1985, data from the Association of Schools of Public Health reveal that female graduates made up 46.4 percent of the total in 1975 compared with 58.4 percent in 1985. Programs outside schools of public health reported comparable estimates in 1981-82 of 55.1 percent female graduates (Table 8).

Proportionally, racial/ethnic minority representation among public health students nationally underwent little change during the ten-year period between 1975 and 1985 for Hispanics but declined for blacks. In schools of public health, black students comprised 6.6 percent of total enrollments in 1975 and 5.5 percent in 1985 (Table 9). The number of black students, however, rose from 348 to 433 in the ten-year period. Proportionally, Hispanics accounted for slightly more than two percent in both 1975 and 1985, but the actual number of Hispanic students increased from 112 to 175 during this period. Whites represented approximately 80 percent of total enrollments in 1975 but only 75.4 percent in 1985, yet the numerical total increased from 4,334 students in 1975 to 5,992 in 1985. Estimates available for programs outside schools of public health suggest that in 1981-82 the average proportions of

total enrollments were 7.2 percent black and 2.7 percent Hispanic, with whites retaining approximately 84 percent of total enrollments (Table 7). In general, the proportional distribution among enrollments by race/ethnicity in programs outside of schools of public health in 1981-82 paralleled the distribution within schools of public health only for Hispanics.

TABLE 8

GRADUATES FROM PUBLIC HEALTH PROGRAMS OUTSIDE SCHOOLS OF PUBLIC HEALTH BY GENDER AND RACE/ETHNICITY 1981-82

	Total	Percent Male	Percent Female	Percent White	Percent Black	Percent Hispanic
Community Health Nutrition	221	21.0	79.0	82.3	6.1	3.3
Environmental and Occupational Health	428	73.7	26.3	86.5	7.3	1.7
Epidemiology	17	47.1	52.9	100.0	-0-	-0-
Health Services Administration	1,356	NA	NA	NA	NA	NA
Health Education	1,369	31.6	68.4	78.2	13.1	7.2
Health Statistics	44	50.0	50.0	NA	NA	NA
Community Health	83	46.1	53.8	78.3	16.9	-0-
AVERAGE		**44.9**	**55.1**	**85.1**	**8.7**	**2.5**

SOURCE: Bureau of Social Services Research, 1982.

The number of blacks and Hispanics graduated from schools of public health between 1975 and 1985 generally declined (Table 10). In 1975, 188 degrees were awarded to black students. A gradual decline over the ten-year period found 150 degrees awarded to blacks in 1985. Proportionally, blacks received 7.4 percent of degrees awarded by schools of public health in 1975 and 5.6 percent in 1985. Although the number of degrees awarded to Hispanics fluctuated slightly, a decreasing number of Hispanic students were awarded degrees, with 47 degrees going to Hispanics in 1975 and 37 in 1985. Hispanics received almost two percent in 1975 and 1.4 percent in 1985. The percentage of degrees awarded during the same period for whites increased from 80.4 percent to 82.9 percent. Racial/ethnic status for approximately 10 percent of all degrees awarded was unknown or "other". Data for programs outside schools of public health show somewhat similar trends as the estimated average proportion of degrees awarded in 1981-82 was 85.1 percent for whites, 8.7 percent for blacks, and 2.5 percent for Hispanics (Table 8).

TABLE 9

TOTAL ENROLLMENT OF U.S. STUDENTS IN SCHOOLS OF PUBLIC HEALTH BY RACE/ETHNICITY[1] 1975-85

Year	Total	White		Black		Hispanic[2]		Other & Unknown	
		Number	%	Number	%	Number	%	Number	%
1975	5,415	4,334	80.0	348	6.6	112	2.1	621	11.5
1976	5,597	NA	NA	NA	NA	NA	NA	NA	NA
1977	5,804	NA	NA	NA	NA	NA	NA	NA	NA
1978	6,340	NA	NA	NA	NA	NA	NA	NA	NA
1979	6,532	5,421	83.0	415	6.4	173	2.6	523	8.0
1980	6,047	4,892	80.9	379	6.3	199	3.3	577	9.5
1981	7,366	5,440	73.9	376	5.1	141	1.9	1,409	19.1
1982	7,615	5,805	76.2	403	5.3	176	2.3	1,231	16.2
1983	7,617	5,794	76.1	357	4.7	171	2.2	1,295	17.0
1984	7,641	5,900	77.2	368	4.8	169	2.2	1,204	15.8
1985	7,942	5,992	75.4	433	5.5	175	2.2	1,342	16.9

[1]Does not include non-American citizens.

[2]Only mainland Hispanics.

SOURCE: Association of Schools of Public Health, 1987.

TABLE 10

DEGREES AWARDED TO U.S. STUDENTS IN SCHOOLS OF PUBLIC HEALTH BY RACE/ETHNICITY 1975-1985

Year	Total	White		Black		Hispanic		Other & Unknown	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
1975	2,535	2,037	80.4	188	7.4	47	1.9	263	10.4
1976	2,479	2,081	84.0	176	7.1	43	1.7	179	7.2
1977	2,459	2,126	86.5	148	6.0	48	2.0	137	5.6
1978	2,623	2,179	83.1	164	6.3	46	1.8	234	8.9
1979	2,923	2,452	83.9	182	6.2	50	1.7	239	8.2
1980	2,762	2,159	78.2	163	5.9	73	2.6	367	13.3
1981	2,720	2,181	80.2	143	5.3	64	2.4	332	12.2
1982	2,969	2,508	84.5	166	5.6	51	1.7	244	8.2
1983	2,652	2,191	82.6	150	5.7	57	2.2	254	9.6
1984	2,536	2,113	83.3	140	5.5	49	1.9	234	9.2
1985	2,703	2,242	82.9	150	5.6	37	1.4	274	10.1

SOURCE: Association of Schools of Public Health, 1987.

B. Undergraduate Education

At the undergraduate level, only four institutions in the nation offer a baccalaureate degree in public health through schools of public health. These are at the University of North Carolina, University of Washington, University of Massachusetts, and University of Minnesota. Students generally concentrate in such areas as health administration, nutrition, biostatistics, environmental science, and health education. As with postbaccalaureate public health students, most graduates move into state health agency positions. A number, however, elect graduate school over immediate employment.

The need for public health education at the undergraduate level is controversial. While some educators and employers believe that public health personnel should be based in a discipline with public health education offered only through graduate work, others suggest that the changing focus and multidisciplinary demands placed on public health personnel underscore the need for baccalaureate graduates prepared with a public health perspective.

C. Accreditation

Schools and programs of public health may seek specialized accreditation from the Council on Education for Public Health (CEPH), an independent agency recognized by the Council on Postsecondary Accreditation to accredit graduate schools of public health and certain graduate public health programs outside schools of public health, including graduate programs in community health education and community health/preventive medicine. CEPH criteria for accreditation incorporate quality of both product and process--the ends to be achieved through public health educational, research, and service activities, the means used to achieve the desired ends, and evaluation of the degree to which the desired ends are attained. The College of Public Health at the University of South Florida is among the 24 schools of public health currently accredited by CEPH. The public health graduate program in community health/preventive medicine at the University of Miami is also accredited by this agency.

In addition to accreditation from a specialized agency, institutions housing public health schools or programs normally attain accreditation from a regional accrediting body such as the Southern Association of Colleges and Schools, which serves Florida institutions.

D. Financial Support for Public Health Education

Federal assistance to public health education began in 1956, making it one of the oldest federal health manpower training programs. Aid earmarked for Schools of Public Health was designed to partially subsidize the cost of education as the schools provide comprehensive training of personnel for federal, state, and local service. In the 30-year interim, the number of accredited schools has more than doubled, increasing from 11 to 24. Federal assistance to public health education has taken many forms, including institution or capitation support, student aid vis a vis traineeships, residency training for students of preventive medicine and dentistry, and special projects. Capitation grants or institutional support may be applied to any educational program in the School of Public Health. These funds are

subject to general restrictions that apply to federal funds and specifically cannot be used for new construction or student assistance. Traineeships are intended to attract economically disadvantaged and high caliber students to public health as well as to offer the opportunity for students to gain practice experience in public health agencies. The ASPH reports that approximately 52 percent of graduates depend on traineeships, scholarships, fellowships, grants, loans, or employment as the primary source of funds for educational expenses. Students in schools of public health, however, are not eligible for the federal Health Professions Student Loan program as are most students in other schools of the health professions. Federal funds supporting public health education include National Institute for Occupational Safety and Health Training Center Grants, National Institutes of Health Research Training Grants, as well as Health Resources and Services Administration, Public Health and Health Administration Training Grants. The U.S. Department of Health and Human Services reports that $9.238 million was awarded in 1984 through Public Health/Health Administration Training Grants.

Appropriations for public health for the period 1957 to 1984 fluctuated measurably, with federal financial support at its greatest during the mid-to-late 70s (Table 11). Institutional support peaked in 1973 at $6 million and generally declined steadily into the 1980s. Allocations for traineeships also reached a high point in the mid-1970s, then declining to the early 1960s level by 1984. Within a ten-year period, federal traineeship monies dropped considerably as funding in 1986 was 30 percent of the level of funding provided in 1976. While funding was strong for projects over two decades, support for projects had disappeared by the early 1980s.

As federal dollars subsided after the mid-1970s, institutional and other sources have been relied upon to support public health education. Institutional funds, in particular, have accounted for an increasing share of expenditures by U.S. schools of public health during a time when total expenditures almost tripled (Table 12). In 1974-75, institutional sources comprised 36 percent of expenditures as compared to 50.1 percent in 1985-86. Concurrently, federal dollars made up only 37.7 percent of total support in 1985-86 versus 54.9 percent in 1974-75. The federal government proposes to end capitation grants to the schools and traineeships and preventive medicine residencies for students.

TABLE 11

APPROPRIATIONS FOR PUBLIC HEALTH BY TYPE OF SUPPORT Fiscal Years 1957-1986

Fiscal Year	Institutional Support[1]	Traineeships[2]	Projects[3]
1957	--	$ 1,000	--
1958	--	2,000	--
1959	$ 450	2,000	--
1960	1,000	2,000	--
1961	1,000	2,000	$ 1,430
1962	1,173	2,000	2,000
1963	1,900	4,000	2,000
1964	1,900	4,195	2,000
1965	2,500	4,500	2,500
1966	3,500	7,000	4,000
1967	3,750	8,000	5,000
1968	4,000	8,000	4,500
1969	4,554	8,000	4,917
1970	5,154	8,000	4,917
1971	5,054	8,400	4,517
1972	5,554	8,400	4,517
1973	6,000	9,600	6,000
1974	5,700	9,120	5,700
1975	5,900	9,120	5,500
1976	5,900	9,120	5,500
1977	5,900	9,120	5,500
1978	5,900	7,000	5,000
1979	5,900	7,000	5,000
1980	6,450	7,000	5,000
1981	4,307	6,750	2,800
1982	4,176	2,880	--
1983	4,176	2,500	--
1984	4,838	2,569	--
1985	5,000	3,000	--
1986	4,785	2,871	--

[1]Under P.L. 94-484 authorities beginning in FY 1978, schools of public health received capitation grants under section 770 PHS Act.

[2]Under P.L. 94-484 authorities beginning in FY 1978, schools of public health and other eligible entities received public health traineeship grants under section 748 of the PHS Act.

[3]Under P.L. 94-484 authorities beginning in FY 1978, schools of public health and other eligible institutions including graduate programs in health administration received funds under section 792 of the PHS Act. Effective August 13, 1981, under P.O. 97-37, section 792 was repealed.

SOURCE: U.S. Department of Health and Human Services, Bureau of Health Professions, Health Resources and Services Administration, 1986.

TABLE 12

U.S. SCHOOLS OF PUBLIC HEALTH EXPENDITURES
1974-75 TO 1985-86

Fiscal Year	Total Expenditures	Institutional Sources		Federal Sources		Other Sources	
1974-75	$ 122,315,857	$ 43,613,028	35.7%	$ 67,180,975	54.9%	$ 11,521,854	9.4%
1976-77	143,291,759	54,456,054	38.0	73,281,169	51.1	15,554,536	10.9
1977-78	160,373,199	63,821,421	39.8	79,581,854	49.6	16,969,924	10.6
1979-80	202,478,891	82,227,292	40.6	95,920,799	47.4	24,330,800	12.0
1980-81	220,401,261	91,696,770	41.6	105,123,883	47.7	23,580,608	10.7
1981-82	239,781,526	109,925,409	45.9	101,734,232	42.4	28,121,885	11.7
1982-83[a]	230,274,946	112,532,050	48.9	90,662,549	39.4	27,080,347	11.7
1983-84[a]	229,914,729	112,476,638	48.9	84,707,805	36.8	32,730,286	14.3
1984-85	286,636,621	148,485,900	51.8	105,897,277	36.9	32,253,444	11.3
1985-86	321,090,836	161,011.821	50.1	121,036,930	37.7	39,042,085	12.2

[a]One school did not report. In 1982-83 a small school was not included, and total expenditures were not greatly greatly affected. However, in 1983-84 one of the largest schools was not included, and expenditures are significantly underreported.

SOURCE: Association of Schools of Public Health, 1987.

IV. PUBLIC HEALTH EDUCATION IN FLORIDA

Prior to this decade, graduate degrees in public health were not offered by any postsecondary education institution in the State. In 1980, the Florida Advisory Council on Intergovernmental Relations, a permanent advisory committee to the Legislature, recommended that the Legislature study the feasibility of establishing a school of public health at one of the state universities. Later that year, a Task Force on Planning for Education of Public Health Professions was appointed by the Chancellor of the Board of Regents to advise the Board on the need for public health education in Florida. The Task Force concluded that a school should be established in the Florida State University System, noting that public health was the only major profession for which there was no program of advanced and/or graduate training in the State. The group also recommended that master's degree programs not be limited to the school of public health but made available at other institutions to enhance access for part-time and local candidates. Five universities were subsequently considered as possible sites to house a public health program and/or school. In 1983, the Board of Regents designated USF for a new College of Public Health effective July 1984.

The first Florida graduate program in public health was offered at the University of Miami with the MSPH degree program's charter class in 1980. Between 1983 and 1985 the University of Central Florida also awarded approximately 42 MPH degrees. At present, graduate-level degree programs for the master's and the doctorate in public health are offered in the State. Master's degree programs are available at the University of South Florida, Florida International University, and the University of Miami. Florida's only doctoral program in public health is located at the University of South Florida. The University of Central Florida and the University of Florida offer courses in related fields.

The establishment of the College of Public Health at USF and the program at FIU as well as the strengthening of the program at the University of Miami with State support have enhanced both programmatic and geographic access for Florida citizens to public health education at the graduate level. In addition to these programs, numerous others in related fields are offered at other public and private postsecondary institutions in Florida and contribute not only to the overall supply of public health personnel but also to the improvement of academic preparations of employees of the public health system at all levels.

The results of increased emphasis in recent years on public health educational opportunities in the State are reflected in enrollment and graduation data (Tables 13 and 14). Among the existing three public health programs, total enrollments grew from 117 in 1984 to over 300 in 1987. In turn, the numbers of master's degrees awarded between 1984 and 1987 totaled 189. As the programs continue to develop and attract increasing numbers of graduate students, enrollments are expected to surpass the levels of these early years. Concurrently, market demand for better prepared public health personnel is expected to create increased stress on the State's public health programs.

TABLE 13
TOTAL ENROLLMENTS IN ALL FLORIDA MASTER'S PROGRAMS IN PUBLIC HEALTH
FALL 1984 TO FALL 1988

Year	Total	MALE		FEMALE		WHITE		BLACK		HISPANIC		OTHER	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1984	117	39	33.3	78	66.7	101	86.3	9	7.7	5	4.3	2	1.7
1985	191	68	35.6	123	64.4	155	81.2	19	10.0	14	7.3	3	1.6
1986	234	82	35.0	152	65.0	167	71.4	36	18.4	18	7.7	12	5.1
1987	307	113	36.8	194	63.2	217	70.7	45	14.7	30	9.8	15	4.9
1988	328	107	32.6	221	67.4	229	69.8	44	13.4	43	13.1	12	3.7

SOURCE: Institutional reports, 1988.

TABLE 14
TOTAL MASTER'S DEGREES AWARDED IN FLORIDA PUBLIC HEALTH PROGRAMS
1984 TO 1988[a]

Year	Total	MALE		FEMALE		WHITE		BLACK		HISPANIC		OTHER	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1984	3	1	33.3	2	67.7	2	67.7	1	33.3	0	0.0	0	0.0
1985	14	3	21.4	11	78.6	10	71.4	1	7.1	3	21.4	0	0.0
1986	60	22	36.7	38	63.3	47	78.3	5	8.3	4	6.7	4	6.7
1987	52	23	44.2	29	55.8	39	75.0	8	15.4	5	9.6	0	0.0
1988	60	20	33.3	40	67.7	41	68.3	6	10.0	6	10.0	7	11.7

[a] To Spring 1988

SOURCE: Institutional reports, 1988.

A. University of South Florida

Background

In establishing a College of Public Health, Legislative intent called for the School at the University of South Florida to "assume a leadership role within the state's public health system through the development of academic programs intended to meet this state's unique health care, economic, political, and social service needs" (Section 381.025(3), Florida Statutes). Additionally, the School is to "serve as an information resource and as a consultant to the state's public health officials in the management of public health affairs".

USF began enrolling students in the master's degree in public health program in August 1982. Following Board of Regents action in 1983, the State's only College of Public Health was established by Legislative directive at USF. Master's students currently select between the MPH and MSPH degree options. The doctoral program was initiated in August 1987. In addition to classes at the Tampa campus, the College also conducts master's courses in Tallahassee, Orlando, and Sarasota.

Organizationally, the College is a component of the Medical Center and derives funding support from various budget sources. Although currently housed in renovated facilities, the College is scheduled to move into a new building in academic year 1991-92. The College was awarded full accreditation status in 1987, marking the first time the Council on Education for Public Health has granted full accreditation without requiring a two-year pre-accreditation phase.

Disciplines are divided among four departments: Health Policy and Management, Biostatistics and Epidemiology, Occupational and Environmental Health Sciences, and Community and Family Health. Each offers the MPH, MSPH, and Ph.D. with several concentrations available. In addition, a joint program is available for students desiring an MPH in Maternal/Child Health and a master's degree in social work. The Department of Health Policy and Management is also offering a master's in Health Administration. The Department of Community and Family Health has a unique accelerated program which enables qualified undergraduates to pursue a master's in public health degree in Health Education.

Curricula

At the master's level, the public health program is designed to link coursework, field experience, and project or thesis requirements with public health problems and needs. These problems and needs relate directly to population dynamics, to the introduction of new types and patterns of disease within the population, to the availability of knowledge of health promotion and disease prevention to various population groups, and to the planning, marketing, and management of health services delivery systems for all citizens of the State. Course content is directly related to addressing and meeting public health needs:

- Biological, physical, and chemical factors that affect the health of a community.

- Concepts and methods of relevant social and behavioral sciences.
- Distribution of diseases or conditions in populations and factors that influence this distribution.
- Collection, storage, retrieval, analysis, and interpretation of health data.
- Planning, policy analysis, and administration of health programs.

Degree requirements generally include 15 semester hours in public health core courses, at least 18 semester hours in the specialty or concentration area and electives, three or six semester hours for a project or thesis respectively, and a comprehensive examination.

Faculty

From ten full-time faculty in 1984, the College had grown to over 31 full-time faculty in 1988. Adjunct faculty are used sparingly each semester when needed to teach specific courses.

Research plays an important role in the College's mission, and the research efforts are varied. Both the number of grants and contracts and the number of dollars generated through research projects have increased substantially. In 1986-88, awards totaled $1,600,905 compared to $127,570 in 1983-84.

Enrollments and Graduations

Most of the students enrolled in the master's program are employed full-time, many as health professionals returning for additional academic experience for job enhancement. The off-campus programs available in Tallahassee, Orlando, and Sarasota were implemented to serve similar place-bound student groups in various parts of the State and foster access to public health education. While the Sarasota program is on-going, providing continuous courses for students, the Tallahassee and Orlando sites are designated as modules where courses are offered in the evening over a two-and-one-half year period. Overall, these out-reach efforts have been very effective; USF continues to explore offerings at other sites.

Enrollment in the College of Public Health master's program has increased steadily since official designation as a College was granted in 1984 (Table 15). Total Fall enrollment has grown from 88 in 1984-85 to 195 in 1987-88. Approximately ten percent of total enrollments since Fall 1986 have been in the MSPH program. Since about 70 percent of the master's students study part-time, the full-time-equivalent (FTE) level is much lower. In 1984-85 there were 33.4 FTE versus 128.5 FTE in 1987-88--a threefold increase in five years.

The number of degrees awarded in the master's programs totaled 130 by the end of academic year 1987-88 (Table 16). This total is expected to increase steadily, with occasional years of greater growth as the College's off-campus initiatives such as those in Tallahassee and Orlando reach completion and the MPH degrees are granted to students in the groups.

TABLE 15
TOTAL ENROLLMENT IN PUBLIC HEALTH MASTER'S DEGREE PROGRAMS - UNIVERSITY OF SOUTH FLORIDA
FALL 1984 to FALL 1987

Year	Total	MALE		FEMALE		WHITE		BLACK		HISPANIC		OTHER	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1984	88	27	30.7	61	69.3	78	88.6	8	9.1	0	0	2	2.3
1985	140	42	30.0	98	70.0	123	87.9	10	7.1	5	3.6	2	1.4
1986	146	44	30.1	102	69.9	120	82.9	10	6.8	8	5.5	8	5.5
1987	195	65	33.3	130	66.7	161	82.6	11	5.6	11	5.6	12	6.1
1988	207	61	29.5	146	70.5	173	83.6	11	5.3	14	6.8	9	4.3

SOURCE: Institutional reports, 1988.

TABLE 16
DEGREES AWARDED IN PUBLIC HEALTH MASTER'S PROGRAMS - UNIVERSITY OF SOUTH FLORIDA
1984 to 1988

Year	Total	MALE		FEMALE		WHITE		BLACK		HISPANIC		OTHER	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1984	1	0	0	1	100.0	1	100.0	0	0	0	0	0	0
1985	8	2	25.0	6	75.0	7	87.5	1	12.5	0	0	0	0
1986	42	13	31.0	29	69.0	37	88.1	1	2.4	2	4.8	2	4.8
1987	28	10	35.7	18	64.3	27	96.4	0	0	1	3.6	0	0
1988[a]	51	16	31.4	35	68.6	37	72.5	4	7.8	3	5.9	7	13.7

[a]To Spring 1988.

SOURCE: Institutional reports, 1988.

Off-Campus Programs

Consonant with Legislative intent that the USF College serve the State in providing public health education, the College has developed MPH programs with select concentrations in three Florida cities: Sarasota, Orlando, and Tallahassee. USF faculty generally travel to teach on-site, with the aid of some adjunct faculty.

Using USF campus facilities, concentrations in Health Policy and Management and Maternal Child Health were implemented in Sarasota in 1985. USF serves the Orlando area with a concentration in Health Policy and Management. Students interested in other concentrations may take core courses in Orlando but must take concentration area courses on the Tampa campus. Since 1986 a concentration in Health Policy and Management has been offered in Tallahassee. Most of the students are employees of the Florida Department of Health and Rehabilitative Services; an HRS grant of $62,000 to USF covers travel and associated university costs. Twenty-two students are expected to graduate from this program in mid-1989.

While the off-campus programs offer access to graduate-level education in public health to employed professionals, these initiatives create difficulties for both the College and students. Faculty resources are strained with the additional travel time involved, and students may not have the benefit of adequate faculty assistance or use of library resources.

B. Florida International University

The MPH program at Florida International University, established in Fall 1985, was housed within the Department of Health Services in the School of Public Affairs and Services. As of July 1, 1988, the program was relocated to the recently reorganized College of Health. A special annual allocation of $150,000 to FIU is budgeted for two faculty positions, graduate assistants, and library acquisitions. FIU has been very dependent on this State support through an affiliated program with the University of Miami which is discussed in more detail below.

The FIU public health program is presently seeking preaccreditation status with the Council on Education for Public Health and is working toward full accreditation by 1990. A major obstacle in the program's accreditation plan is a requirement that there be at least one faculty person for every area of specialization. The program currently has four areas of concentration and only two FTE faculty. Joint faculty appointments with other departments and cooperative arrangements under discussion with Broward Community College and a local clinic may help the program meet accreditation requirements.

Curriculum

The master's in public health curriculum allows students to concentrate in one of four areas: Environmental Health, Epidemiology, Health Promotion, or Public Health Policy and Administration. To be awarded the MPH degree, students must complete 45 credits: an 18-hour general core, an 18-hour concentration, and either a field-training residency or a master's research project. Class

schedules are built around an evening program to accommodate part-time, employed students.

In addition, the program offers a dual Nurse Practitioner/MPH program which allows qualified students to pursue coursework toward the Nurse Practitioner certificate while taking graduate-level courses leading to the MPH degree. Other dual degree programs under consideration would combine the master's in social work degree with the MPH at FIU, and a Doctor of Osteopathic Medicine degree from the Southeastern College of Osteopathic Medicine in Miami would be combined with FIU's MPH.

Faculty

FIU has two FTE faculty. Adjunct faculty are drawn from local health agencies and other FIU departments to assist through teaching and guest lecturing in the public health program. Due to the staff's teaching responsibilities, faculty have little opportunity to engage in research on a large scale.

Enrollments and Graduations

During the four years since the master's program began, total enrollments have grown from ten in Fall 1985 to 65 in Fall 1988 (Table 17). The program has been accepting all qualified applicants. Students are drawn from surrounding counties as well as the southwestern Florida area and out-of-state. Several enrollees enter the master's program with a prior degree in a health-related field such as medicine, nursing, pharmacy or dentistry. Eighteen MPH degrees had been awarded through Spring 1988 (Table 18).

TABLE 17
TOTAL ENROLLMENTS IN PUBLIC HEALTH MASTER'S DEGREE PROGRAM - FLORIDA INTERNATIONAL UNIVERSITY
FALL 1985 to FALL 1988

Year	Total	MALE		FEMALE		WHITE		BLACK		HISPANIC		OTHER	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1985	10	3	30.0	7	70.0	7	70.0	3	30.0	0	0	0	0
1986	38	14	36.8	24	63.2	18	47.4	16	42.1	2	5.3	1	2.6
1987	55	19	34.5	36	65.5	21	38.2	23	41.8	9	16.4	2	3.6
1988	65	20	30.8	45	69.2	19	29.2	28	43.1	17	26.2	1	1.5

SOURCE: Institutional reports, 1988.

TABLE 18
DEGREES AWARDED IN PUBLIC HEALTH MASTER'S PROGRAM - FLORIDA INTERNATIONAL UNIVERSITY
1986-1988

Year	Total	MALE		FEMALE		WHITE		BLACK		HISPANIC		OTHER	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1986	10	5	50.0	5	50.0	5	50.0	4	40.0	0	0	1	10.0
1987	7	3	42.9	4	57.1	1	14.3	5	71.4	1	14.3	0	0
1988[a]	1	1	100.0	0	0	0	0	0	0	1	100.0	0	0

[a]Spring 1988 only.

SOURCE: Institutional reports, 1988.

C. University of Miami

The graduate programs in public health at the University of Miami are located in the Department of Epidemiology and Public Health within the School of Medicine. The MSPH program first enrolled students in 1980-81, followed by the MPH program in Fall 1984 as part of the joint program with Florida International University. The graduate programs in public health are accredited until 1990 by the Council on Education for Public Health.

Under the cooperative MPH degree program, the University of Miami has also received $150,000 annually since 1985. The University reports that these funds are reserved for students and used for tuition support and graduate assistantships covering tuition and stipends.

Curricula

The University offers concentrations in Epidemiology, Biostatistics, Health Behavior in Education, Environmental Health, and Health Administration. Students may select a course of study in public health leading to the applied degree (MPH) or the research-oriented degree (MSPH). A combined MD/MPH degree is also available to currently enrolled University of Miami medical students. The MPH is a 45-semester hour program with a research project or thesis. The MSPH is a 36-semester hour thesis program. Core courses for both degrees include biostatistics, epidemiology, environmental health, nutrition, public health administration, public health practice, and health behavior and education.

Faculty

Although the public health program has increased since its creation, the number of full-time faculty within the Department of Epidemiology and Public Health decreased. The public health program how has 6.0 FTE faculty and draws on faculty from other departments within the institution, from FIU, other postsecondary institutions nationally, and public health professionals from local health agencies.

Enrollments and Graduations

Total enrollments have almost doubled in the public health programs, increasing from 29 in 1984 to 56 in 1988 (Table 19). Enrollees include Florida residents receiving tuition subsidy through the FIU/UM cooperative project, a large number of physicians, public health professionals and foreign students, as well as others. The Palm Beach County health department has been particularly supportive of employees wishing to obtain the advanced degree. The University has been accepting all qualified applicants. Approximately 15 new students enter the program annually. The majority study on a part-time basis, producing an FTE student count of between 30 and 35.

The number of degrees awarded annually has also increased steadily. Seventeen degrees, MPH and MSPH combined, were granted in 1987 compared to two in 1984 (Table 20). Most of the degrees awarded are from the applied program, with only two or three annually from the MSPH program.

TABLE 19
TOTAL ENROLLMENTS IN PUBLIC HEALTH MASTER'S DEGREE PROGRAMS - UNIVERSITY OF MIAMI
FALL 1984 to FALL 1988

Year	Total	MALE		FEMALE		WHITE		BLACK		HISPANIC		OTHER	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1984	29	12	41.4	17	58.6	23	79.3	1	34.5	5	17.2	0	0
1985	41	23	56.1	18	43.9	25	61.0	6	14.6	9	22.0	1	2.4
1986	50	24	48.0	26	52.0	29	58.0	10	20.0	8	16.0	3	6.0
1987	57	29	50.9	28	49.1	35	61.4	11	19.3	10	17.5	1	1.8
1988	56	26	46.4	30	53.6	37	66.1	5	8.9	12	21.4	2	3.6

SOURCE: Institutional reports, 1988.

TABLE 20
DEGREES AWARDED IN PUBLIC HEALTH MASTER'S PROGRAMS - UNIVERSITY OF MIAMI
1984 to 1988

Year	Total	MALE		FEMALE		WHITE		BLACK		HISPANIC		OTHER	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1984	2	1	50.0	1	50.0	1	50.0	1	50.0	0	0	0	0
1985	6	1	16.7	5	83.3	3	50.0	0	0	3	50.0	0	0
1986	8	4	50.0	4	50.0	5	62.5	0	0	2	25.0	1	12.5
1987	17	10	58.8	7	41.2	11	64.7	3	17.6	3	17.6	0	0
1988[a]	8	3	37.5	5	62.5	4	50.0	2	25.0	2	25.0	0	0

[a]To Summer 1988.

SOURCE: Institutional reports, 1988.

D. Affiliated Florida International University/University of Miami Program

In academic year 1982-83 the Board of Regents requested that FIU and the University of Miami develop an applied public health graduate program, and a one-year planning grant was approved for 1983-84. Since academic year 1984-85, the two universities have received a special allocation of $150,000 each to implement affiliated programs. Under the joint arrangement, students from one institution may enroll for a maximum of 15 credits at the other. In addition to providing reciprocity for students, the universities also provide guest lecturers for each other's programs and collaborate on educational projects and research.

The number of students served through these funds varies annually as tuition levels change at both institutions. During academic year 1985-86, a total of 15 University of Miami students enrolled in public health courses at FIU. This decreased to ten in 1986-87 and eight in 1987-88. The University reports that the number of FIU students attending the University of Miami was four in 1985-86, ten in 1986-87, and five in 1987-88. Similar data from FIU show that in 1985 one FIU student went to the Miami program; this increased to nine students in 1986 and six in 1987. FIU reports that seven of Miami students entered FIU courses in 1985, 13 in 1986, and nine in 1987. Discrepancies in the data notwithstanding, there has been greater movement of Miami students to the FIU campus than vice versa. This may be attributed to student selection of different concentrations.

Miami estimates that 15 full-time-equivalent or approximately 30 headcount students can be supported annually with this State appropriation. Florida residents enrolled in either of the public health programs at these institutions paid $65 per credit at FIU and $95 per credit at Miami in 1987. When a student enrolls in a Miami course and pays $95, the remaining tuition is charged against the $150,000. In past years when the allotment for tuition has exceeded the $150,000 allocated by the State, the University of Miami has absorbed the loss.

It appears that the cooperative program arrangement has been of mutual benefit to FIU and Miami. Drawing on the strengths of both institutions, this approach has provided a range of specializations as well as access to public health education in the South Florida area to health professionals seeking to enter public health work and to those employed and wanting to enhance their academic credentials. Since 1985, however, fewer students enrolled in one program have registered for courses in the other public health program while overall program enrollments have increased at both institutions.

E. Public Health-Related Programs

Schools of public health and programs outside schools of public health are generally considered the major sources of public health education. There are a number of programs and major areas of study, however, in other colleges and schools within the public and private university setting that provide educational experiences of benefit to individuals entering public health work (Table 21). Among the many public health-related programs and courses of study available are Hospital and Health Care Administration, Environmental and Sanitary Engineering, Health Education, Dietetics and Nutrition, Community

Nursing, Community Health Counseling, Health Services Administration, and Health Science. These programs are often offered outside a College of Health, in such diverse colleges and schools as Education, Engineering, Business, and Nursing. For example, place-bound University of Central Florida and University of North Florida students unable to enroll in public health programs often elect the UCF or UNF programs in Health Sciences. No enrollment or graduation data on these programs are included here, but they do contribute to the total manpower supply for public health personnel. In addition, professional programs in medicine, nursing, pharmacy, dentistry and other areas provide health professionals for public health employment.

TABLE 21

PUBLIC HEALTH-RELATED PROGRAMS IN FLORIDA PUBLIC POSTSECONDARY INSTITUTIONS 1986

Program	Bachelor's	Master's	Doctoral
Health Services Administration	FAMU, FIU, FAU	UF, FIU	
Dietetics/Human Nutritional Services	UF, FSU, FIU	FSU, FIU	
Environmental Health Engineering	UF, UCF	UCF, FIU, UF*	UCF
Health Education	UF, FSU, USF, UWF, FIU	UF, FSU, UWF, FIU	
Health Science	UNF	UCF, UNF	

*Master's in Engineering Degree

SOURCE: State University System of Florida 1986-87 Fact Book.

F. Minority Participation

The participation of gender and racial/ethnic minority groups is detailed through Tables 13 to 20 for both enrollments and degrees awarded in master's programs at the University of South Florida, Florida International University, and the University of Miami. During the short time Florida's public health programs have existed, the increase in numbers and proportional representation of males as well as of blacks and Hispanics have varied. While the numbers of males, blacks, and Hispanics enrolled have increased many fold, male proportional representation has remained relatively stable. Black and Hispanic percentage representations have doubled and tripled respectively.

Males have consistently accounted for at least 30 percent of enrollments at USF and FIU.while their representation in Miami programs has ranged from 40 to 56 percent in the last five years (Tables 15 and 17). Although males at USF also account for approximately 30 percent of master's in public health graduates (Table 16), the proportion of degrees awarded to males increased at FIU to almost 43 percent (Table 18). While longitudinal data on enrollments and graduations are limited due to the recency of the FIU program initiation, it appears that more males than females tend to successfully finish the MPH program as males account for less than 40 percent of enrollments but more than 40 percent of graduates. The predominance of females in Florida public health education programs is consistent with national trends where the proportion of women enrolled has steadily increased to 60 percent in 1985. Among degree completers nationally, however, 58.4 percent were female in 1985-86, somewhat higher than in Florida programs.

The enrollment representation of blacks in Florida's master's in public health programs has increased both numerically and proportionally since 1984 (Table 13). The number of blacks rose from nine in 1984 to 44 in 1988, but their proportion of total enrollments during that same period only doubled, from seven to 13 percent. At the institutional level, FIU has been particularly successful in recruiting blacks, with FIU showing half of the total black enrollment in the three public health master's programs. When compared to national data on enrollments of blacks, Florida's 10 percent level in 1985 was almost double the 5.5 percent for all schools of public health in that year. The number of black graduates annually of Florida public health programs since 1984 has been low. Approximately 11 percent of all public health master's degrees awarded between 1984 and 1988 went to blacks. Again, the FIU program has generally led in the number of master's degrees awarded to blacks. The ten-year period ending 1985 also reflected a decline in the total number of master's degrees awarded to blacks nationally in schools of public health.

Within the three public health programs, Hispanic enrollment in 1988 was eight times greater than in 1984, jumping from five to 43 students (Table 13). Hispanics accounted for 13.1 percent of total enrollments in 1988, triple the 1984 percent of 4.3. In 1987 and 1988, the Hispanic students in public health were almost equally divided among the three institutions. Fewer than 20 Hispanic students have been awarded master's degrees from Florida's public health programs since 1984. In comparison with other public health programs in the United States, Florida has a higher percentage of Hispanics enrolled than the national average of less than three percent.

In sum, the proportional representation of racial/ethnic minorities in the State's public health programs has increased over the last five years and is higher than national averages. Nonetheless, minority enrollments are concentrated in selected programs and better distribution of black and Hispanic students is needed across all public health programs. While there is need to improve these data, especially the numbers of minorities successfully completing master's degrees in public health, we must not lose sight of the fact that these are graduate programs. The recruitment of master's students is contingent upon the pool of qualified baccalaureate degree graduates and on the interest of other professionals with advanced degrees in moving into the public health arena and pursuing graduate work in public health.

V. PUBLIC HEALTH MANPOWER

The Commission's 1988 report, Comprehensive Review of Health Professions Education for Florida, found that any analysis of manpower supply and demand for public health personnel is handicapped by the inadequacy of present data bases and the diversity of the public health work force. No comprehensive listings of public health personnel exist or are available through licensing boards and credentialing bodies as they are for other fields. A recent report from the U.S. Department of Health and Human Services comments that baseline data on supply are lacking and no on-going sampling frame exists on which to base projections. These difficulties are present not only for Florida but nationally, resulting in a reliance on expert opinion and isolated studies of selected public health personnel. Changes in legislation, regulations, and government initiatives at the federal, state, and local levels impact particularly on demand estimates, making projections of public health manpower even more difficult to determine. Demographic data for Florida and population projections suggest that factors such as the growing population, the greater numbers of elderly, the large migrant and immigrant subgroups, and the indigent groups will place increasing stress on the State's public health system and on public health personnel.

The following summary of manpower information for the nation and for the State reflects the status of current data relative to the supply of and demand for various public health personnel. It should be noted that although a project to establish a national public health vacancy reporting system was developed for DHHS by the American Public Health Association in 1983, lack of federal funding to implement the system has left the initiative on the drawing board.

A. National Manpower

The most recent and comprehensive examination of national public health appears in the U.S. Department of Health and Human Services (DHHS) 1988 document Report to the President and Congress on the Status of Health Personnel. This report emphasizes that many objectives established in the national public health program for the 1980's will not be realized by 1990. One reason is that substantial numbers of highly trained public health professionals are required. The report warns that the nation not compromise progress in improving health because of an inadequately trained work force.

The DHHS report also identifies five major public health problems that will increase future need for public health personnel:

- Concern over toxic wastes and serious problems in the handling and control of chemicals and of biological and radioactive substances.
- The increase in behavior-related disorders such as substance abuse, unintentional injuries, and early pregnancy problems among children and young adults.
- New generations of infectious diseases, including AIDS, legionaries' disease, and toxic shock syndrome.

- Difficult and costly health problems and service needs of special population groups such as the elderly, the impoverished, the disadvantaged, and migrant and immigrant populations.

- Improving infant and mother care by ensuring a healthy start in life for all infants and enhancing the health of their mothers.

On the basis of recent manpower studies and reports to Congress, the DHHS report concludes that shortages of personnel are likely in several public health specialties:

- Epidemiologists
- Environmental and Occupational Health Professionals
- Biostatisticians
- Nutritionists
- Public Health Nurses
- Physicians trained in public health and preventive medicine

The Association of Schools of Public Health reports that existing health environmental legislation has created growing manpower needs in public health, and the demand for manpower is expected to continue as Congress and state legislatures enact new programs to improve the quality of life and reduce health care costs.

B. Florida Manpower

As indicated in Chapter II, there are over 8,600 budgeted positions in the State public health system. As no comprehensive information is available on public health manpower for Florida, only a few of the specialties will be discussed.

Epidemiologists

A 1988 study assessing the current supply of and anticipated need for epidemiologists in the United States estimated the current ratio of active epidemiologists to one million population at 19.4 nationally. Florida was determined to have within the range of 7.5 to 11.9. If the current ratio is adequate, the State has approximately half of the epidemiologists it needs. The study asserts, however, that the current work force of epidemiologists nationally is inadequate, with the greatest deficiency occurring among physician specialists in epidemiology.

Among the public health programs in the State, both the University of South Florida and the University of Miami provide concentrations in epidemiology at the master's level; the doctoral program at USF also offers a concentration in this area.

Public Health Nursing

The current shortage of nurses both nationally and in Florida has had a negative impact on the supply of public health nurses. The Florida Department of Health and Rehabilitative Services, which now requires a baccalaureate degree in nursing for public health nurses, reported a position vacancy rate for professional nursing staff employed by county public health units of 11 percent during March 1987. County public health units across the State have experienced varying degrees of difficulty in recruiting for nursing positions. Counties in Southern urban areas have found recruiting particularly difficult as the public health agencies must compete with hospitals for nurses. The Commission's earlier study of public health (1983) raised the issue of the large number of registered nurses employed in public health agencies who did not have preparation in public health nursing. A related concern emerged during the present study as HRS reports that it must often provide on-the-job training with a public health focus for nurses even though a BSN is required. To help alleviate these problems, HRS has been sponsoring a series of continuing education activities for nurses through a contract with the College of Public Health at USF.

Public Health Dentists

Unlike many public health specialties, the demand for dentists does not currently exceed supply. The Florida HRS reports no difficulties recruiting public health dentists. Currently, 54 different facilities in 26 counties have approximately 52 FTE dentists serving Florida residents. In addition, HRS contracts with private providers for service. It appears that positions as public health dentists are competitive with private practices with State salary levels and other benefits attracting sufficient dentists to public health work.

HRS does report, however, great difficulty in recruiting and retaining dental auxiliaries, including both dental hygienists and dental assistants. The major obstacle is the low salary levels, making it almost impossible for public health to draw auxiliaries from private practices. The current dental hygiene and dental assisting shortages in some areas of the State exacerbate the problem within HRS.

Public Health Administrators

In addition to inadequate manpower supply in some of the traditional public health areas described in the national context above, officials in the State Health Office identified public health administrators as yet another shortage area. Increasing accountability at the State level has underscored the need for good managers, yet the State lacks a resource pool of qualified, experienced people in public health to move into administrative positions. To strengthen the pool of future administrators, the State Health Officer and Deputy Secretary for Health would like to attract recently graduated professionals to work in the State's smaller counties, gradually moving them into larger counties to provide a variety of experiences to equip these individuals for State- and district-level responsibilities.

Graduate Preparation in Public Health

An assessment conducted by the Florida Task Force on Public Health Education (1980) of the need for graduate-prepared professionals in public health revealed that, among respondents, only five percent of individuals in budgeted professional public health positions held or were in the process of completing graduate public health degrees. The Commission's 1983 public health report estimated that less than 30 percent of the identified need for public health professionals in the State was being met.

The development of additional public health programs in the State during the 1980s has strengthened Florida's public health system by increasing the number of personnel in this field with graduate preparation. As illustrated in Chapter IV of this report, enrollments in the three public health programs have more than doubled and the number of master's degrees awarded jumped from three in 1984 to 52 in 1987. Also, the off-campus master's programs now in place through the University of South Florida will augment the numbers of HRS personnel with graduate training. Unfortunately, no more recent data are available on the overall needs of the State's public health system for personnel with graduate preparation in public health.

VI. ISSUES AND RECOMMENDATIONS

The range of the Commission's responsibilities in advising the State Board of Education on matters related to health professions education in Florida requires an examination of such areas as program and geographic access, quality of educational experiences, service to population subgroups, demographic patterns, and the requirements of the labor market. These areas, in turn, often evolve into important issues that need to be addressed through recommendations.

During the present study of Public Health Education in Florida, discussions with educational, industry, and government leaders as well as analyses of numerous state and national documents have led to the identification of many issues. This chapter summarizes those issues of import to the planning and provision for adequate, appropriate educational opportunities to meet the growing and diverse public health needs of Florida and sets forth recommendations to address those issues.

A. Education/Government Collaboration

Growing concern in this decade with public health in general stimulated the formation in 1986 of the Committee on the Future of Public Health under the sponsorship of the Institute of Medicine, the W. K. Kellogg Foundation, and two agencies of the U.S. Public Health Service. While created to address the perception that the nation had "lost sight of its public health goals and ...allowed the system of public health activities to fall into disarray," the Committee's final report also recognized the need to strengthen ties between public health agencies and education (The Future of Public Health, 1988). Specifically, the Committee on the Future of Public Health recommended that:

> Schools of public health establish firm practice links with state and/or local public health agencies so that significantly more faculty members may undertake professional responsibilities in these agencies, conduct research there, and train students in such practice situations.
>
> Schools of public health should fulfill their potential role as significant resources to government at all levels in the development of public health policy.
>
> In view of the large numbers of personnel now engaged in public health without adequate preparation for their positions, the schools of public health should undertake an expanded program of short courses to help upgrade the competence of these personnel. In addition, short course offerings should provide opportunities for previously-trained public health professionals, especially health officers, to keep up with advances in knowledge and practice.

The Postsecondary Education Planning Commission has long advocated business/education partnerships; in the case of public health, the proper "business" is State government. The State public health system is the major employer of public health graduates and of employees who seek additional preparation through public health education programs. It is imperative,

therefore, that linkages between government and the educational sector be in place and functional if programs are to be responsive to State and local health department needs. The State's College of Public Health is charged with serving as an information resource and as a consultant to the State's public health officials in the management of public health affairs. While USF holds primary responsibility for serving the State's needs, the other public health programs should also assist in their service areas. Discussions with leaders from public health education and the State Health Office indicate that some collaboration is currently being carried out. Examples of current cooperative initiatives are the master's off-campus programs conducted by USF, continuing education activities sponsored by HRS and implemented by USF, research contracts between USF and HRS, and assistance by FIU and University of Miami to county health departments in the south Florida area. What is absent, however, is an organized effort between State government and the public health education programs to coordinate the public health education needs of the State, research interests, and continuing education needs of the public health workforce.

The Commission's 1988 report, Comprehensive Review of Health Professions Education for Florida, cited the need for a state-level group to coordinate health issues and needs with health professions education. A subsequent recommendation was made that the Statewide Health Council, as the advisory body to the Governor, the Legislature, and the Department of Health and Rehabilitative Services on health policy issues for the State, coordinate this statewide planning group. The Statewide Health Council accepted this recommendation and is organizing an initial meeting of representatives from the education, industry, and government sectors. It is appropriate that this composite group take the leadership role in promoting and assisting collaboration between the State's public health system and public health education programs.

Recommendation:

1. **The new state-level health policy and education coordinating group to be convened by the Statewide Health Council should act as a catalyst to strengthen collaboration and coordination between the Florida public health system and public health education programs. Since this state-level group is to include representation from the Board of Regents, the State Board of Community Colleges, the Division of Vocational, Adult and Community Education, the State Board of Independent Colleges and Universities, and the State Health Office, it is the appropriate entity to assist in developing education/government linkages.**

As indicated above, the Committee on the Future of Public Health called on public health programs to help improve the competence of public health personnel lacking adequate preparation for their positions by expanding the programs of short courses. The Commission supports this suggestion and requests that public health programs in Florida collaborate with the State Health Office in identifying these individuals and developing the educational experiences needed to best serve them.

Recommendation:

2. **The State Health Office, with participation from county public health units, should identify the educational needs of public health employees at local, district, and state levels who do not have the preparation desired for their positions. The State Health Office and the public health education programs should jointly design a set of activities and actions whereby public health education programs can help meet those needs.**

State Health Office leaders and other personnel in the public health system have testified to the need to provide additional transitional educational experiences for health professionals, particularly physicians, who move into public health work without prior experience or preparation in public health. Although the Department of Health and Rehabilitative Services currently offers on-going in-service activities to acquaint these particular health professionals with the field of public health, it is believed that the transition into public health work would be enhanced through a more intensive and focused set of educational experiences outside a formal public health program. This "orientation" activity would be sponsored and implemented by HRS. While a portion of the "orientation" would necessarily be centered on specific public health specialties, the remainder would be generalized to public health work. Among potential users are participants in the State's Medical Education Tuition Reimbursement Program, administered through the Department of Health and Rehabilitative Services. This Program was created to attract certain health professionals to practice in underserved areas. Authorized in 1987, the Program serves students working toward medical or nursing degrees or licensure, advanced registered nurse practitioner status, or physician assistant certification. The 1988 Legislature approved an initial appropriation for the Program of $136,192.

Recommendations:

3. **The College of Public Health at the University of South Florida and the public health programs at Florida International University and the University of Miami should assist the State Health Office in the development of an orientation program designed to introduce health professionals to public health work. To facilitate the implementation of this orientation program statewide, a package should be designed that is transportable rather than site specific which draws on existing educational expertise in various public health education and related programs as well as in local health departments.**

4. **The orientation program described above should be incorporated into the experiences provided to recipients of the newly-funded Medical Education Tuition Reimbursement Program. As the Reimbursement Program carries a requirement to work in an underserved location identified by HRS, it would be appropriate to encourage recipients to select public health as a means of fulfilling their service commitment. The transition "orientation" package should provide the types of information**

and the focus needed to stimulate recipients to consider public health work.

B. Public Health Manpower

Florida's public health programs are producing increasing numbers of students with graduate education as a result of definitive State action supported by the Commission in its 1983 study of public health education to develop educational opportunities through both public and private postsecondary institutions. The great growth in enrollments among the three programs documents student interest in pursuing public health graduate education. Reports that graduates who were not employed during their studies have little difficulty locating employment also support the need in the labor market for these graduates.

While available information on program enrollments and graduations provide data on manpower supply, there is little documented information on the demand for public health personnel. The Department of Health and Rehabilitative Services contains a Comprehensive Health Planning Office charged with maintaining information on current health manpower and providing projections on manpower demand for health professions. Although no specific studies have been conducted for public health personnel through this office, surveys have been carried out of health professionals such as physicians, dentists, pharmacists, and nurses. As these health professionals are employed in public health as well as in other sites, limited information is collected via these periodic surveys. Also, the State Health Office maintains records on position turnover and time required to fill vacancies, but there is no on-going, comprehensive analysis of this information to establish current or future manpower needs. Since the great majority of public health students are HRS employees or will most likely join the State's public health system, demand data are central to institutional and state-level planning for public health programs. The Department of Health and Rehabilitative Services, in particular the State Health Office, and the educational sector need to augment the manpower data bases with supply and demand information.

Recommendations:

5. **Within the Department of Health and Rehabilitative Services, the Office of Comprehensive Health Planning, the State Health Office, and county public health units should conduct on-going analyses of public health positions in the State system and develop manpower projections for public health professionals in the major specialties. Using these data, the State Health Office should provide periodic reports analyzing manpower supply and demand in the public health system.**

6. **The public health education programs should conduct studies to identify prospective student demand in their service areas to assess both the needs of public health employees and the interest among prospective public health personnel. The resulting data should be communicated to the State Health Office and used in conjunction with other manpower information as part of an on-going manpower information exchange.**

Given the many demands placed on any public health system, the academic preparations of public health personnel will vary considerably. There is consensus among public health administrators and managers, however, that a large proportion of a public health system's positions require education beyond the baccalaureate degree. A survey conducted in 1980 by the Florida Task Force on Public Health Education estimated that only five percent of persons in budgeted professional public health positions held, or were in the process of completing, graduate public health degrees. In 1983, the Commission's earlier public health study estimated that less than 30 percent of the identified need for public health professionals in the State was being met. No more recent data has been collected state-wide either on the need for master's prepared public health personnel or on the educational plans of current employees to seek a graduate degree. Yet, this kind of information reflecting both labor market needs and student demand is central to planning for future programs in postsecondary education.

Recommendation:

7. **The State Health Office should replicate the survey on graduate public health preparation undertaken by the 1980 Florida Task Force on Public Health Education. The Department of Health and Rehabilitative Services should then utilize the results of the study in developing a long-range plan to provide graduate public health education opportunities at the master's and doctoral levels for its employees.**

The 1988 Legislature authorized the creation of a State Center for Health Statistics within the Department of Health and Rehabilitative Services. Accompanying language stated: "It is the intent of the Legislature to require providers and other health-care-related entities to provide the information necessary to operate the comprehensive health information system. In proviso, the Legislature specified that "The center shall establish a comprehensive health information system to provide for the collection, compilation, coordination, analysis, indexing, dissemination, and utilization of both purposefully collected and extant health-related data and statistics." Among the types of statistics to be collected are data on "health resources, including physicians, dentists, nurses, and other health professionals, by specialty and type of practice, and acute-long-term care, and other institutional care facility supplies and specific services provided by hospitals, nursing homes, home health agencies, and other health care facilities. The center shall provide technical assistance to persons or organizations engaged in health planning activities in the effective use of statistics collected and compiled by the center."

In many of its health professions reports since 1982, the Commission has expressed great concern over the paucity and inadequacy of manpower data on the health professions to use in educational policy decision making. Most recently in the Comprehensive Health Professions Plan Review for Florida (1988), the Commission found:

> Any discussion of Florida manpower for the health professions is restricted by inadequate manpower information. Major limitations exist in the quality and quantity of Florida health manpower data.

There is critical need for a comprehensive manpower data base which incorporates, at a minimum, regular surveys of all of the health professions studied in this report. Additionally, the State, through the Department of Health and Rehabilitative Services, should give priority to conducting ongoing manpower supply and demand projections for those health professions individually, on a rotating basis, so that approximately every five years revised projections are produced.. Substantive planning for health professions education by the State's postsecondary education institutions and governing and coordinating boards is dependent on the availability of accurate, complete, and timely data on both current and projected Florida health manpower needs.

While data from postsecondary educational programs are not specified as part of the Center's data base as described in statute, the inclusion on the State Comprehensive Health Information System Advisory Council of representatives from colleges and universities among HRS appointees and a representative of the Department of Education clearly establishes a collaborative environment for education/government interface on health data and information issues. Information collected and disseminated by the Center would be of significant value to other HRS agencies in producing manpower projections and to the State's colleges and universities in planning health professions education programs to serve the State's needs for health professionals. The Commission endorses the establishment of the Center and strongly encourages the active participation of the educational sector on the State Comprehensive Health Information System Advisory Council.

Recommendation:

8. **The newly authorized State Center for Health Statistics in the Department of Health and Rehabilitative Services should receive the full support of the Legislature and the necessary fiscal resources to implement activities and conduct those responsibilities assigned by the 1988 Legislature.**

C. Program Access

Public health education emerged in Florida in the decade of the 80s with establishment of the State's College of Public Health and the program at Florida International University and with State-support to strengthen the University of Miami program. A program at the University of Central Florida was also in place for a short period early in the decade. In addition to the current programs in public health, each of the universities in the State University System has some type of public health-related program at the baccalaureate-or-higher level. The Board of Regents Master Plan does not provide for a new MPH program during academic years 1988-93. The College of Health Related Professions at the University of Florida is exploring a master's public health program which would target physicians completing their residency training in family medicine, pediatrics, general medicine, or obstetrics and gynecology. Graduates would be prepared to sit for certification in their specialties and would hold the MPH degree. Due to the recency of public health education in the SUS, the Board of Regents has not

conducted program reviews to date. This field will be included, however, in the 1990-91 review of health sciences programs.

The demographic characteristics of Florida, particularly the growing elderly cohort, migrant and immigrant groups, and the indigent, indicate that increasing demands will be placed on the State's public health system, producing a concomitant need for more and highly trained public health professionals. Public testimony and discussions with educators in the three public health programs and with HRS staff reveal that unmet demand exists in various parts of the State for master's level programs in public health. As discussed in the preceding issue section, however, there is little quantitative demand data to support the anecdotal reports. The University of South Florida is to be commended for its off-campus programs in Sarasota, Orlando, and Tallahassee to serve area residents with graduate programs. Considering future demands on USF as the program responsible for maintaining the State's leadership role in public health and increasing demands for public health education in the northern parts of the State, it is timely to monitor program access closely to assure continued service and to project for future geographic access to master's-level education in public health concentrations. In this process, particular attention should be focused on the north central and total north portion of the State as these geographic regions are not served by a local public health education program.

Recommendations:

9. **The Board of Regents should monitor the manpower supply of and demand for public health professionals in the State to determine if program expansion or additional programs are warranted in order to assure that the needs of public health education are served throughout the State.**

10. **During the 1990-91 Board of Regents program review, the Board should examine program access in light of the developments in both manpower data and public health education programs in the interim between this study of public health education and the Board's program review.**

Following the 1983 Commission report and recommendations to support a joint MPH program between Florida International University and the University of Miami, a special legislative appropriation was made to plan and implement the affiliated program that now exists, and funding has continued. FIU and the University of Miami concur that the cooperative arrangement has been highly successful on many fronts, especially in providing diversity of coursework experiences for students, encouraging faculty sharing, and generally serving local public health departments with master's degree programs and continuing education activities. Enrollment and graduation data clearly illustrate the important role these programs play in providing access and increasing the numbers of racial/ethnic and gender minorities with advanced public health education.

The southeast Florida area has a number of unique population characteristics that underscore the need to strengthen public health education in that geographic area. All of the public health services cited by the State Health

Office are essential to an even greater degree in many counties of south Florida than in other parts of the State. Neither the Miami nor the FIU program has been able to go off-campus with master's courses due to the limited number of program faculty. At FIU, program enrollment has grown by 550 percent in the past five years, yet the number of FTE faculty remains at two. In addition, program accreditation is jeopardized by the lack of faculty in all concentration areas. If the FIU public health program is to continue serving southeast Florida with quality educational opportunities, the university must address the issue of sufficient fiscal resources.

Recommendations:

11. **The State should continue support for the FIU/UM affiliated public health program.**

12. **Florida International University should examine its allocation of institutional resources to assure that adequate support is provided to the institution's public health program to meet the needs of student enrollment and accreditation requirements. In light of the program's significant contributions in providing access to public health education in the south Florida area and to enhancing the participation of racial/ethnic minority groups, FIU should assure that allocated resources are sufficient not only to establish a fiscally sound program to meet current needs but also to provide growth opportunities.**

D. Minority Participation

The need for racial/ethnic minorities within the public health work force is particularly important because a large proportion of all individuals served in most local health departments is black or Hispanic. As noted in Chapter IV, growth in the actual numbers of racial/ethnic minorities participating in graduate public health education programs in the State has accompanied the overall growth in the three programs as seen through enrollment and graduation data. Upon close examination, however, the data show few graduates when compared to enrollees, suggesting that black and Hispanic progression and retention may be a problem. All of the State's public health education programs are encouraged to continue working to improve the representation of racial/ethnic minorities in their enrollments and graduations. The annual Florida Minority Graduate Opportunity Conference provides an opportunity to meet with prospective students and draw them towards the field of public health. This event is sponsored by the Board of Regents, the Florida Endowment Fund for Higher Education, and the Postsecondary Education Planning Commission.

Recommendation:

13. **Public health education programs should participate annually in the Florida Minority Graduate Opportunity Conference to recruit qualified racial/ethnic minorities.**

E. Research in Public Health

As graduate-level education, public health programs have the dual responsibility of preparing public health professionals as practitioners and of enhancing the knowledge base of this field through research. The interdisciplinary nature of public health work reinforces the need for constant updating of information across many fields and for research that is current and specific to the problems of the public health system. While the Department of Health and Rehabilitative Services and the State Health Office engage in limited research, the State's public health programs share in the responsibility to assist in research efforts. The Committee of the Future of Public Health cited above recommends that research in schools of public health "range from basic research in fields related to public health, through applied research and development, to program evaluation and implementation research." The Committee's final report goes on to state that the "unique research mission of the schools of public health is to select research opportunities on the basis of their likely relevance to the solution of real public health problems and to test such application in real life settings." This statement may apply, as well, to programs outside schools of public health. The master's degree project or thesis and the doctoral dissertation requirement in the respective public health education programs provide a mechanism to help respond to research needs of the State's public health system. Nonetheless, during the preparation of this study, it appeared that education/government coordination of research in public health has been minimal in Florida.

Selected public health-related research may qualify for the State's high technology research program developed by the Board of Regents and the Florida High Technology and Industry Council. Among the seven areas recommended in the plan as focal research topics are biomedical devices and biotechnology. The plan also recommends support for basic and applied research. This research program would provide access to both human and fiscal resources through a statewide pool of professional expertise as well as through a competitive process for selection of research proposals.

Recommendations:

14. **Representatives of the public health programs in the State and the State Health Office should develop together an agenda for public health research, identifying the research needs of the public health system and strategies to help meet those needs.**

15. **Public health education programs, related programs, and the State Health Office should explore the feasibility of jointly utilizing resources in the high technology research program administered through the Florida High Technology and Industry Council.**

State of Florida
Department of Education
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Affirmative action/equal opportunity employer